

**US Army Corps
of Engineers**
New Orleans District

**ASSESSMENT OF HISTORIC LANDSCAPE,
HIGHWAY 45 BORROW PIT,
JEFFERSON PARISH, LOUISIANA**

Final Report

October 2003

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13. ABSTRACT (Maximum 200 words) Earth Search, Inc., undertook a limited cultural resource investigation of a proposed borrow pit for a hurricane protection feature of the West Bank Hurricane Protection Project. Work was performed under contract to the New Orleans District, US Army Corps of Engineers. The project area lies on the west side of the Highway 45 levee and east and north of the Jean Lafitte National Historical Park and Preserve boundary. Fieldwork consisted of a reconnaissance survey of the APE. Systematic transect survey was undertaken wherever possible. Cultural features were identified and mapped; however no excavations were undertaken. A metal detector was also used in an attempt to locate artifacts likely to be associated with the features. Investigations centered on the assessment of the cultural features as parts of a unified landscape associated with the overall theme of agriculture in the Barataria Basin. Historic maps and aerial photographs were examined and compared to present-day maps. Historic research focused on determination of the likely origin of these features and establishing a context for their evaluation. While the current project study area landscape contains observable historic features, consisting of elements of a standard nineteenth-century cane field drainage system, it does not encompass all of a single integrated field drainage system. The destruction of the major part of this specific field drainage system, and the degradation of features present in the study area by natural processes has compromised the integrity of the historic landscape and eliminated its ability to convey significance. The project area is not and does not possess elements of a significant rural historic landscape.			
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CHAPTER 1 INTRODUCTION

Earth Search, Inc., undertook a limited cultural resource investigation of a proposed borrow pit for a hurricane protection feature of the West Bank Hurricane Protection Project. Work was performed under contract to the New Orleans District, US Army Corps of Engineers. The project area lies on the west side of the Highway 45 levee and east and north of the Jean Lafitte National Historical Park and Preserve boundary (Figure 1). The boundaries of the park and the associated NRHP district are delineated on Figure 2.

Background research was undertaken prior to field investigations. Previous research in the vicinity of the APE indicated that cultural features such as field canals, drains, and ditches occur in the area. These are the remains of field systems associated with sugarcane agriculture in the region. Although it was requested, additional information from a local researcher was not available (see Appendix A).

Fieldwork consisted of a reconnaissance survey of the APE. Systematic transect survey was undertaken wherever possible; however, standing water prevented access into all areas. Also, dense vegetation, such as palmetto and other undergrowth, greatly obscured the features. Cultural features were identified and mapped; however no excavations were undertaken. A metal detector was also used in an attempt to locate artifacts likely to be associated with the features.

ESI's investigations are centered on the assessment of the cultural features as parts of a unified landscape associated with the overall theme of agriculture in the Barataria Basin. Historic maps and aerial photographs were examined and compared to present-day maps. Historic research focused on determination of the likely origin of these features and establishing a context for their evaluation.

Although it was not required within the scope of work, additional survey outside the APE was undertaken in adjacent areas with high potential for cultural features (Figure 1). Specifically, the vicinity around the intersection of Ross and Woods Place Canal was examined. Additionally, the berm on the west side of Woods Place Canal was surveyed with the metal detector, as was the berm on the south side of Ross Canal. No artifacts of any sort other than modern trash were recovered from the APE or the additional surveyed area.

Report Organization

Chapter 2 provides a brief overview of the natural setting. Chapter 3 summarizes the prehistoric occupations of southeastern Louisiana. Chapter 4 is a detailed summary of the historic settlements in the vicinity of the project area. Discussions of previous investigations within the area are presented in Chapter 5. Chapter 6 details the field investigations. Interpretations and evaluations of the cultural features are provided in Chapter 7. Chapter 8 presents our conclusions and recommendations.



Figure 1. Excerpt from color infrared orthophotos of the NW and SW quadrants of the Bertrandville, LA 7.5' USGS quadrangle depicting the project study area.

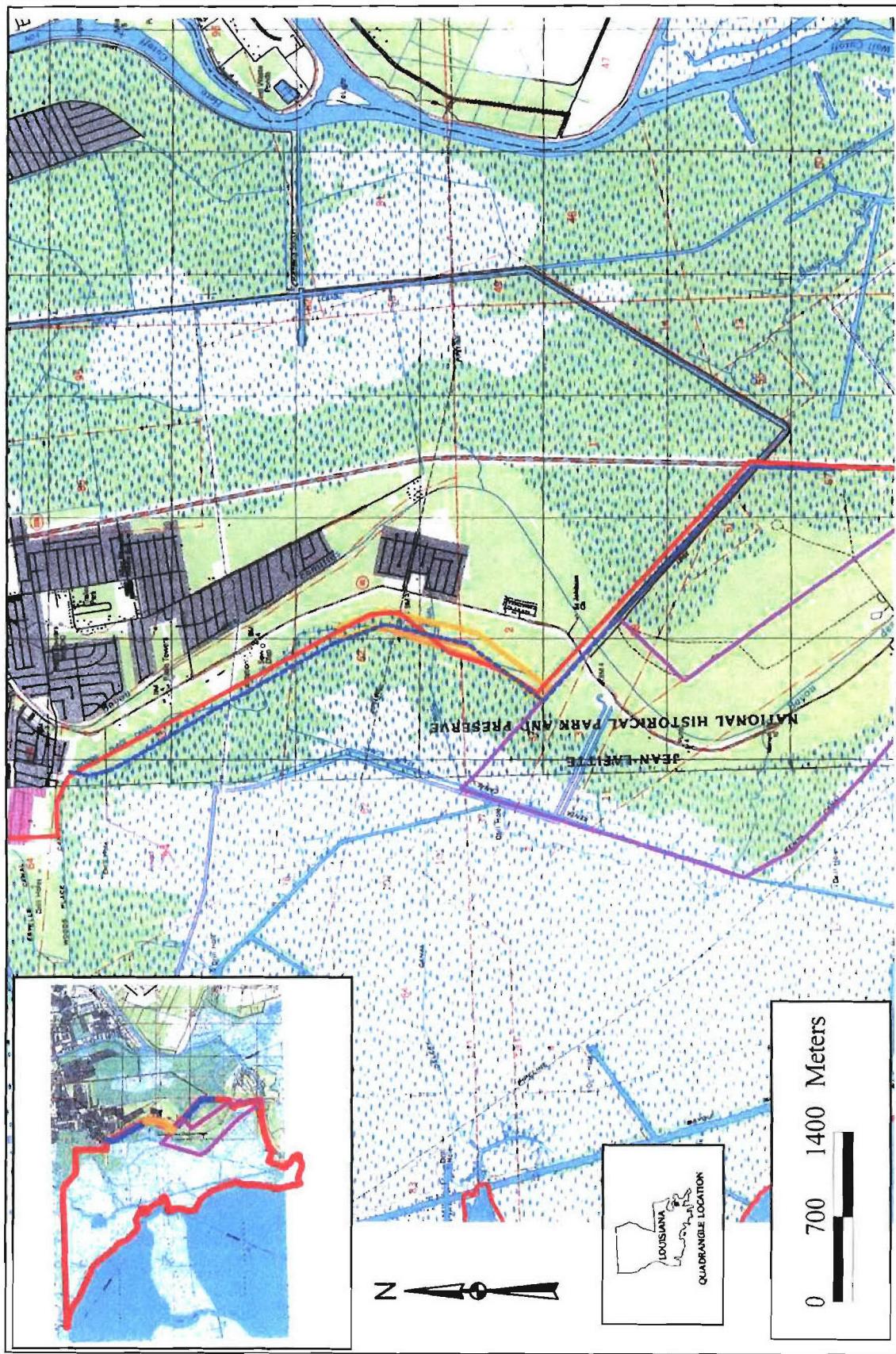


Figure 2. Excerpt from the Bertrandville, LA and Lake Cataouatche East, LA (1995) 7.5' quadrangles showing the location of the project area in yellow. Jean Laffite Park boundaries are shown in red (data from NPS) and blue (boundaries marked on quadrangles). Boundaries of National Register Historic District, Barataria Unit are shown in purple.

CHAPTER 2 ENVIRONMENTAL OVERVIEW

Physical Setting

The project area lies within the broad landscape of the Barataria Basin. The Barataria Basin is an enclosed basin with its apex approximately at Donaldsonville (Adams et al. 1976:3). The basin widens toward the coast, with Bayou LaFourche and Belle Pass forming the western boundary, and the Mississippi River and Red Pass forming the eastern boundary. It encompasses approximately 400,000 hectares (990,000 acres) and is about 129 kilometers (80 miles) long. Bahr and Hebrard (1976:1) state, "This broad, low-lying region, representing the most recently abandoned Mississippi River delta complex and its adjacent estuarine and offshore waters, is characterized by a set of ecological parameters that are integrated into a complex, dynamic ecosystem of enormous biological productivity." Dunn (1983:349), in her study of the flora of the Coquille site (16JE37), observes, "The density and diversity of the living plant community at Coquille are remarkable. The flora on the earth mounds, an area measuring approximately 100 x 300 m, is rich in potentially useful economic plants. This contrasts strongly with the flora of the neighboring swamp and marsh communities."

The project area is located within and adjacent to the backswamp at the distal edge of the natural levee on the west side of Bayou des Familles. Bayou des Familles is a relict distributary channel of the Mississippi River. The physiographic origin of Bayou des Familles, as shown on the Bertrandville quadrangle (USGS 1966, photo revised 1972 and 1979), is in Section 2, T14S, R23E, south of Marrero. It flows south, entering Bayou Barataria in the area of Crown Point. Bayou Barataria flows south, connecting to Lake Salvador, The Pen, Bayou Rigolettes, and other lakes, and eventually enters Barataria Bay. Currently, Bayou des Familles is a relict stream, draining surface runoff from the surrounding area. Although Bayou des Familles never received the full discharge of the Mississippi River, it did receive a considerable portion of the discharge during its prograding stage (Fisk 1944; Frazier 1967). Evidence of the previous significance of Bayou des Familles in transporting Mississippi River discharge and sediment is indicated by the size of the natural levees flanking the stream and the width and amplitude of the meander belts, which are related to a stream's discharge (Knighton 1984). The average width of the exposed levees in the proximity of the study area is between 400-600 m. Elevations of the natural levees range from 1.5 m to sea level. These figures do not take subsidence into account, which would increase both the width and height of the levees. Subsidence near New Orleans is approximately 13.7 cm per 100 years based on radiocarbon samples (Kolb and van Lopik 1958), although rates are likely to differ near Bayou des Familles.

Until about 2,500 years ago, the distributary channel was an active outlet of the Mississippi River, carrying perhaps 40 to 50 percent of the total discharge of the river. About that time, flow began to diminish as a new distributary became active in southeastern Louisiana. As the flow diminished, the slight meandering tendency of the Bayou des Familles distributary channel continued in the site vicinity, and point bar ridges and swales formed along concave banks. As in all point bar areas or zones of lateral channel migration, the silts and sands of the accretion ridges became capped with finer-grained natural levee deposits (clays and silts) during times of overbank deposition during floods. However, since flow was diminishing, the channel was getting narrower and shallower and the accretion ridges were getting smaller and had finer grained sediments, since the carrying capacity of the distributary was diminishing. The distributary continued this reduction in size until probably about 2,000 years ago, when the relict channel within the distributary reached its approximate present size and location.

Historic and Environmental Changes of Bayou des Familles

Historic changes in the channel have probably been few, based on what is known of fluvial processes in the fine-grained deltaic plain. Evidence from topographic maps and aerial photographs does not suggest that Bayou des Familles was an active meandering system, which would be manifest in the form of ox-bow lakes and additional abandoned levee systems (cf. Swanson 1976). The fine-grained sediments (silts and clays) of the prodelta environment are known to greatly reduce the meandering process (Russell 1978), which lessens the development of point bars and meander cutoffs (Kolb 1962). For example, migration of Mississippi River meander bends in the central and upper portions of its alluvial valley, where sediments consist mainly of fine sands and silts, approaches 1,000 ft. per year. In the deltaic plain, migration averages about 500 acres per mile, while in the lower portion of the river point bars have an area of approximately 30 acres per mile (Kolb 1963). Since Bayou des Familles lacks features associated with actively migrating streams, the potential for site occupation in places other than the natural levees of the stream are much less (McIntire 1958).

Climate

Climate affects human groups directly and indirectly in terms of temperature, precipitation, seasonality, the plants and animals that can survive in certain areas, and changes in soils over time (Evans 1978:3). All of Louisiana is located within an area of humid meso-thermal climate of the humid subtropical type generally characterizing all of the southeastern United States. The modern climate of Jefferson Parish is marked by long, hot, and humid summers, although the coastal area is cooled by breezes from the Gulf of Mexico (Matthews 1983:2). The average temperature is 81 degrees F, with an average daily maximum of 90 degrees. Winters are generally warm, with rare snowfalls and occasional incursions of cool air from the north. The average temperature is 54 degrees F, with an average daily minimum of 44 degrees.

In most years, the growing season exceeds 260 days (White et al. 1983:103). This means that it is often possible to schedule successive plantings of a crop between the last freeze in spring and the first freeze in the fall. In addition, 56 percent of the annual precipitation of 147.5 cm falls in April through September. This is the growing season for most crops.

Soils

In their study of the Barataria Unit of Jean Lafitte National Historical Park and Preserve, White et al. (1983:103) observe that the eastern third has alluvial soils of the Inceptisols type supportive of hardwood bottom vegetation, and the marsh vegetation in the western region exhibits soils of the Histosols type. Soils within the project area are Sharkey series. These soils tend to be poorly drained and very slowly permeable. They occur in low and intermediate positions on the natural levees of the Mississippi River and its distributaries (Matthews 1983:53).

Sharkey clay is the specific soil type within the project area (Matthews 1983:Sheet 15). Sharkey clay is a poorly drained soil generally located in low areas on the natural levees of the Mississippi River and its distributaries (Matthews 1983:18). Sharkey clay is of very slow permeability, having formed in clayey alluvium. Flooding is rare, but occurs after heavy rains. Water also stands in low places for short periods after heavy rains. The soil belongs to the Vertic Haplaquepts family, of the Inceptisol order. The development of genetic horizons is just beginning in Inceptisols, but they are still considered to be older than Entisols (Smith et al. 1973; Foth and Turk 1972:246). There is some evidence of leaching, but this is not extreme.

Sharkey clay is moderately well suited to cultivated crops, although a drainage system is usually required (Matthews 1983:19). Because of its tendency to clod, Sharkey clay is difficult

to keep in good tilth (Matthews 1983:19). “The plow layer of this soil is sticky when wet and hard when dry...Wetness delays tillage operations in most years” (Matthews 1983:19).

The soil is poorly suited to urban uses. Wetness, slow permeability, and very high shrink-swell potential are the main limitations to building. It can support the foundations of low structures without pilings. “Buildings and roads need to be constructed to offset the shrinking and swelling and the limited ability of the soil to support a load” (Matthews 1983:18).

CHAPTER 3

ABORIGINAL OCCUPATIONS IN SOUTHEASTERN LOUISIANA

This chapter presents a brief overview of Native American prehistory in southeastern Louisiana. Few sites dating to the Paleo-Indian or Archaic Periods have been reported in southeastern Louisiana (Gagliano 1963; Gagliano and Saucier 1963). Although land formation was occurring in the study area during the Archaic Period, evidence shows that human occupation occurred subsequent to the extensive development of the distributary network. Additionally, Paleo-Indian and Archaic Period sites are likely to have been buried or destroyed by riverine processes.

Jeter and Williams have noted that the “nature of prehistoric developments in the coastal zone during the time span between Late Marksville (Issaquena) and Plaquemine cultures is not well defined” (1989:152). This statement applies especially well to the Barataria Basin portion of the coastal zone, where despite over 50 years of archeological research, basic prehistorical and chronological subdivisions remain vaguely defined and poorly understood.

The Poverty Point Period

The name Poverty Point is derived from the “type” site, an area of massive earthwork construction in northeast Louisiana (Ford and Webb 1956; Gibson 1983; Neuman 1984). The Poverty Point Site (16WC5) is believed to have been a cultural center with trade networks and influence extending throughout the Lower Mississippi Valley (Byrd 1991; Gibson 1983). Baked clay balls known as Poverty Point objects are one of the important traits that mark the period. Other traits include elaborate lapidary and microlithic industry, use of steatite vessels, and the importation and use of exotic non-local stone (Gibson 1983; Neuman 1984).

The earliest known sites in southeast Louisiana are dated to the Poverty Point period. The Linsley (16OR40) and Garcia (16OR34) sites are located in Orleans Parish (Gagliano and Saucier 1963), and the Bayou Jasmine site (16SJB2) is located at the western end of Lake Pontchartrain (Duhe 1977; Gagliano and Saucier 1963:Figure 1). The Garcia site is situated on a buried natural levee associated with an early course of the Mississippi River. Located at the eastern tip of Orleans Parish, the site consisted of an eroding *Rangia* beach deposit. A series of radiocarbon dates, baked clay balls, and a characteristic Poverty Point artifact assemblage consisting principally of microlithic tools and a variety of chipped and polished stonework are evidence that date the site to the Poverty Point period (Gagliano and Saucier 1963:Table 1). Material dredged from the subsided *Rangia* shell midden at Garcia was used to define the Bayou Jasmine-Garcia Phase of the Poverty Point period (Gagliano and Saucier 1963; Gagliano et al. 1975:44-47).

Another important site representing this period and phase is the Bayou Jasmine site (16SJB2). Here, the evidence for a Poverty Point period occupation consists principally of baked clay Poverty Point objects quite similar in size and shape to those from the Poverty Point site (16WC5)(Gagliano and Saucier 1963:321). Duhe (1977:35-37) also reports the presence of small numbers of Poverty Point microtools and a relatively minor quantity of non-local lithic material, including unworked quartz crystals, orthoquartzite projectile points, worked hematite, steatite (which was rare), and an unidentified gray-brown chert. The Bayou Jasmine site also supported an extensive Tchefuncte component, along with later Marksville, Coles Creek, and Plaquemine occupations (Duhe 1977; Gagliano and Saucier 1963).

The Tchula Period

Tchula period occupations in the Lower Mississippi Valley are equated with the Tchefuncte culture. The period has also been identified as the Formative (Jenkins and Krause 1986), or Early Ceramic period because, with the exception of fiber-tempered pottery, it was the interval during which initial pottery complexes appeared in the Lower Mississippi Valley (Neuman 1984:113, 122). Sites are few and scattered, with most occupations found in the coastal zone (Neuman 1984). These data are interpreted to suggest that the peoples of the Tchefuncte culture were largely seminomadic hunters and gatherers (Neuman 1984:135). However, within subareas such as south Louisiana, regional artifact markers, primarily Tchefuncte type ceramics, are useful for recognizing occupations (Phillips 1970:7, 8, 15, 76) and possibly for defining regional populations (Shenkel 1981; Weinstein 1986).

Peoples of the Tchefuncte culture were the first to engage extensively in the manufacture of ceramics. Fiber-tempered and some grog-tempered or temperless sherds have been recovered from earlier Poverty Point contexts (Webb 1982). These may represent primarily trade goods from the earliest pottery-making cultures in the east. The basic Tchefuncte ware is temperless or grog-tempered, with accidental inclusions of small quantities of sand and vegetable fiber. Sand-tempered wares represent a minority constituent of Tchefuncte site (16ST1) assemblages (Shenkel 1984:47-48). Ceramic decorations and various percentages of these decorations have been used to create several regional phases of the Tchefuncte culture in the study area (Weinstein 1986). The Pontchartrain phase is considered the earliest Tchefuncte manifestation in the region, and is thought to date from ca. 500 B.C. to ca. 250 B.C. Pontchartrain phase sites are moderately common in the Pontchartrain Basin. The most notable of these sites are the Tchefuncte site (16ST1) in St. Tammany Parish, and the Big Oak (16OR6) and Little Oak Island (16OR7) sites in Orleans Parish (Ford and Quimby 1945; Neuman 1984; Shenkel 1981, 1984; Shenkel and Gibson 1974). A later Beau Mire phase has been proposed to encompass the period from ca. 250 B.C. to A.D. 1 though this phase is not accepted by all researchers (Shenkel 1981, 1984; Weinstein 1986; Weinstein and Rivet 1978).

Tchefuncte sites in southeast Louisiana are confined to the areas around Lake Pontchartrain and appear to be associated with relatively early river channels and lake margins. Tchefuncte subsistence is fairly well known. Excavations at the Big Oak Island and Little Oak Island sites suggest an emphasis on hunting and fishing (Shenkel 1981, 1984). Shenkel (1981:331) argues that these two sites initially had occupations that supported "permanent or semi-permanent villages." Later, there is evidence that there may have been functionally different occupations, with Big Oak Island evolving into a "specialized" shellfish and fish procurement and processing station (Shenkel 1981, 1984) that was "unquestionably associated with the contemporaneous village component at the Little Oak Island site" (Shenkel 1981:331-332, 1984). Shenkel (1981:333-334) emphasizes the narrow range of exploited foods (primarily *Rangia* clams and marsh-estuarine fish and mammals) in the Pontchartrain phase, noting that many other equally productive resources were virtually ignored.

Social complexity was relatively minimal in the Tchefuncte culture. Settlements are generally small and lack certain evidence of earth works or other complex features. Burials are common, but rarely contained grave furnishings. The evidence for earthen structures, such as mounds, is debatable. Low, domed mounds have been associated with Tchefuncte culture sites, but additional data for securely attributing these constructions to the Tchefuncte people are limited (Neuman 1984:117, 135; Toth 1988:27). Unlike earlier Poverty Point culture, Tchefuncte people did not import non-local or exotic lithics to their sites, nor did they engage in lapidary art to the best of our knowledge.

The Marksville Period

The Marksville period is generally subdivided into two sequential temporal units, early Marksville and late Marksville. The early Marksville period is associated with the Hopewellian Tradition manifested throughout the Eastern United States (Phillips 1970:7, 17-18, 886; Toth 1988). The Hopewell Tradition has two major centers of development in Ohio and Illinois; this tradition dates to between 200 B.C. and A.D. 400. Diffusion of aspects of the culture may have resulted from the activity of traders who established a wide-ranging network, sometimes termed the “Hopewellian Interaction Sphere” (Caldwell 1964). In addition to diagnostic pottery types of the Marksville period, conical burial mounds were characteristic of the culture (Toth 1988). Some of the grave goods associated with these burials were artifacts manufactured from exotic raw materials (Neuman 1984:142-168; Toth 1974, 1988).

The late Marksville period appears to witness an increase in cultural diversity in the Lower Mississippi Valley and also perhaps on the coast. In much of the Lower Mississippi Valley, the Issaquena culture developed over several centuries beginning around A.D. 200 (Greengo 1964; Gibson 1977; Phillips 1970; Williams and Brain 1983). In the Louisiana coastal zone, the cultural situation is very vague and poorly understood.

Excavations at the Coquilles site (16JE37) at the junction of Bayou des Familles and Bayou Coquilles yielded important evidence concerning the Marksville period occupation in the Barataria region (Beavers 1982a; Giardino 1984, n.d.). Surveys of the Bayou des Familles channel indicate the possible presence of Marksville period (phase or cultural relationship unknown) sites consisting principally of small shell scatters (Beavers 1982b). Evidently, there is an early Marksville occupation at the Boudreaux site (16JE53) located on the bank of Bayou Barataria near Crown Point (Beavers 1982a: 26; 1982b: 110).

Additional early Marksville occupations in the lower Barataria region include Kenta Canal (16JE51), Dupre Cut-Off I (16JE8), Dupre Cut-Off II (16JE9), Three-Bayou Field (16JE98), Isle Bonne (16JE60), and Bayou Cutler (16JE3) (Gagliano et al. 1979:4-8--4-19). The early Marksville occupation at Bayou Cutler is evidently the best representation of this time period outside of Coquilles (and possibly Boudreaux). Surface collected sherds from this site include Baytown Plain, *var. Marksville*, some with crosshatched and slanted line rim treatments. Decorated pottery consisted of Marksville Incised, *var. Hill Bayou*; Marksville Stamped, *vars. Marksville, Old River, and Sunflower*; Mabin Stamped, *vars. Mabin and Point Lake*; Churupa Punctated, *vars. Boyd, Hill Bayou, and unspecified*; and Indian Bayou Stamped, *var. Cypress Bayou* (Gagliano et al. 1979:4-3--4-5).

Late Marksville ceramics have been recovered from sites farther down the Barataria waterway. Most notably, there is a small but well-defined component at the Bayou Cutler site (Gagliano et al. 1979:4-19--4-27, Figures 4-17 and 4-18, Appendix A). Additional components include Isle Bonne (16JE60), Kenta Canal, Fleming (16JE36), Bayou Villars (16JE68), Rosethorn School (16JE50), Shipyard (16JE85), and Bayou Dupont-Dupre Cut-Off (16JE91). Ceramics from these sites include classic modes on Baytown Plain, *var. Satartia*, and Marksville Incised, *vars. Goose Lake, Liest, and Yokena* (Gagliano et al. 1979: Figures 4-17 and 4-18).

The Baytown Period

The Baytown period has been defined as the interval between the end of Hopewellian inspired Marksville culture and its later Issaquena and related descendants, and the emergence of Coles Creek culture. The Baytown period is often referred to as the “Troyville period” by Delta archaeologists. Because of the perceived lack of diagnostic markers for the period in southeastern Louisiana, it is often assimilated with the subsequent Coles Creek period, and the two are together referred to and discussed as “Troyville-Coles Creek cultures” (e.g., Neuman 1984).

Historically, the interval between roughly A.D. 400 and A.D. 700 has been one of the most difficult to understand from a culture historical perspective (Kidder 1995:33-34). When Phillips (1970:911-912) established the Whitehall phase to encompass the Baytown period in the Louisiana coastal zone, he specifically noted that the phase “would be more accurately described... as a collection of widely dispersed sites” (1970:911) rather than a coherent archaeological manifestation. Kidder (1994) has argued that Whitehall is not an appropriate phase for this region. Whitehall is better represented in the areas north of the Barataria Basin (Weinstein 1974). Furthermore, Kidder (1994) argues that the Baytown period in the Barataria Basin, and probably all of coastal Louisiana, may be subdivided temporally into early and late phases. The earliest phase of the Baytown period in coastal Louisiana has been termed the Grand Bayou phase, and the later phase is the Des Allemands phase (Giardino 1993; Kidder 1994).

The “type” site for Baytown period occupations in the lower Barataria region is the Isle Bonne site (16JE60) (Beavers 1982b; DeMarcay n.d.; Holley and DeMarcay 1977). Amateur excavations at this site revealed a stratified Baytown period occupation associated with two low rises formed by the accumulation of *Rangia* shell (DeMarcay n.d.; see also Gagliano et al. 1979:Appendix A). Ceramics recovered included Larto Red, var. *Larto* (often with bulbous thickened rims); Coles Creek Incised, var. *Phillips*; French Fork Incised, var. *Brashear*; Woodville Zoned Red, var. *Woodville*; Evansville Punctated, var. *unspecified* (probably similar to var. *Duck Lake*); Indian Bay Stamped, var. *unspecified*; Marksville Incised, var. *unspecified* (*Vick*-like); and Mazique Incised, vars. *Bruly* and *Mazique*.

The coastal pattern of intensive exploitation of fish, deer, and muskrat is in place by the end of the Baytown period. Shellfish harvesting or exploitation continues, but little evidence for settlement differentiation exists at present. The data recovered from the Pump Canal site (16SC27) hint at a series of relatively brief occupations, and the *Rangia* seasonality data indicate a late spring or early summer occupation (Jones et al. 1994). Perhaps at this time populations living in the Barataria Basin were making seasonal trips to the distal ends of distributary courses to hunt, fish, and exploit the *Rangia* beds in the nearby brackish water environments. If this was a part of a seasonal round that involved living in larger, more established villages, such sites have not yet been found.

The Coles Creek Period

The Coles Creek period is the interval that begins with the emergence of Coles Creek culture in the southern part of the Lower Mississippi Valley and ends with the establishment of “full-blown” Mississippian culture in the northern part of the Valley (Phillips 1970:18). Although it appears to represent a population zenith in the eastern coastal zone, many sites tentatively classified as Coles Creek may actually be from the Baytown period (Wiseman et al. 1979:3/5).

Coles Creek culture in the central Lower Mississippi Valley is characterized by small ceremonial centers with mounds surrounded by villages of varying size. The culture developed in the area between the mouth of the Red River and the southern part of the Yazoo Basin. A distinctive coastal variant of Coles Creek culture emerged at the same time, and no doubt there was a dynamic relation among and between Coles Creek period populations on the coast and in the interior (Brown 1984:95; Jeter and Williams 1989).

Mounds associated with the Coles Creek culture generally are larger and exhibit more construction stages than those found at earlier Marksville period sites. A more significant difference is that Coles Creek mounds are pyramidal and flat-topped, and they were used as substructures for religious and/or civic buildings (Ford 1951; Williams and Brain 1983). In contrast, Marksville peoples generally built conical burial mounds (Neuman 1984:167).

The archaeological record of south Louisiana is sufficiently detailed so that the Coles Creek period is divided into spatially discrete geographic areas. In the coastal zone, there are at least three geographic areas with two Coles Creek phases each. In the eastern portion of the coastal zone, from roughly the Atchafalaya River eastward to the St. Bernard marshes, the Coles Creek is defined to include the Bayou Cutler, Bayou Ramos, and St. Gabriel phases (Weinstein 1987).

The settlement patterns of the Coles Creek period are not well understood at this time. There is a general sense that populations were organized into a relatively loosely arranged hierarchy of site types. The most well defined model comes from the Terrebonne marsh area west of the Barataria Basin. Here, Weinstein and Kelley (1992) hypothesize a pattern of major mound sites, satellite villages, and seasonal camps or shellfishing stations. The mound sites consisted of one or more earthen mounds, presumably supporting the structures of elite chiefs and/or priests. They suggested that the Gibson Mounds (16TR5) may have served as the major Coles Creek period mound center in this area, although the precise chronology of all the mounds is as yet undetermined. Most, if not all, of Mound C at Gibson Mounds appears to have been constructed during the Bayou Cutler phase. Smaller village sites are found along stable levee segments, usually at the junction of one or more tributaries.

In the Barataria Basin, the archaeological data are not adequate to fully address the nature of settlement and social organization. Excavations at the Fleming site (16JE36) indicate that Coles Creek period occupations comprise a considerable portion of the vertical extent of this site (Holley and DeMarcay 1977). Along with the Bayou Villars and Isle Bonne sites, Fleming makes up one of the important "Barataria complex" occupations (Gagliano et al. 1979; Holley and DeMarcay 1977). This locality is presumed to be the major center for Coles Creek and Mississippi period settlement in the lower part of the Barataria Basin. All three of these sites supported earthen or shell mounds, although none can be solely assigned to the Coles Creek period (Gagliano et al. 1979).

There were major Coles Creek occupations at both the Sims (16SC2) and Bowie (16LF17) sites, and numerous Coles Creek period occupations are found in the interdistributary basin between bayous Lafourche and Barataria (Hunter et al. 1988; Pearson et al. 1989). The density of Coles Creek occupation in this area is remarkable and suggests that this region was one of the central loci of activity during this period. Sims and Bowie are presumed to be major villages dating to the Coles Creek period (Davis and Giardino 1981; Jackson 1977). Numerous Coles Creek occupations are found on Bayou Barataria and its distributaries south of the confluence with Bayou Villars. The Pump Canal (16SC27) site can also be hypothesized to be an important village occupation during the Coles Creek period (Giardino 1993; Jones et al. 1994). It may have been an important locality serving as a "base camp" for exploiting the resources of the surrounding marshes and lakes.

In the eastern section of the coastal zone, from the Atchafalaya Basin eastward, Weinstein (1987) observed that the Transitional Coles Creek/Plaquemine occupations were best defined as an extension of the St. Gabriel phase, first defined by Brown (1984) based on excavations at the type site (16IV128) (Woodiel 1980). St. Gabriel or contemporary occupations are found at Mulatto Bayou (16SB12), Thibodaux (16AS35), and Bergeron School (16LF33) (Weinstein 1987:93). Absent in the eastern delta area are varieties such as *Mott* and *Plaquemine*.

The available data from surrounding areas suggest that the Transitional Coles Creek/Plaquemine occupation of the Barataria Basin was largely unchanged from earlier Coles Creek times. The major settlements continue to be located along Bayou Barataria or farther inland on the distributary channels of Bayou Lafourche or at the edges of large crevasse splays. The largest site of this time appears to be the Bowie site (Jackson 1977). A contemporary com-

ponent is also found at the Sims site. The concentration of sites at the junction of Bayous Barataria and Villars is the best candidate for regional center in the Barataria Basin, but the precise chronology of these sites is still unknown.

Although Brown et al. (1979) note that important changes in settlement (and presumably subsistence) are initiated during Transitional Coles Creek/Plaquemine times in the Petite Anse region, no such evidence is found in regions to the east. In the Terrebonne marshes, the settlement pattern evidently continues unbroken from earlier times (Weinstein and Kelley 1992:353-355). The quantity and number of mounds constructed appear to increase through time, but how many date to this interval cannot be determined at present. A clear mound center and subsidiary village hierarchy developed during the Coles Creek period and probably continues into these transitional times. The trend in the coastal zone is one of gradual and steady evolution within the region. External influences may be present, but they do not appear to be notable in terms of the process of culture change. The origins of the Mississippi period cultures of the coastal zone seem to be wholly local. Later events, though, seem to suggest that this region witnessed a significant influence from Mississippian groups farther eastward along the coast.

The Mississippi Period

The beginning of the Mississippi period is marked by the appearance of emergent Mississippian culture in the northern part of the Lower Mississippi Valley and throughout much of the interior Southeast. Mississippian culture characteristics, such as shell tempering and the use of maize agriculture, did not penetrate into much of the central Lower Valley until after ca. A.D. 1200. Plaquemine culture is the term used to denote the indigenous late prehistoric populations of most of the Lower Mississippi Valley and adjacent coastal regions. Archaeological evidence suggests that Plaquemine culture emerged from a Coles Creek base and was later influenced by Mississippian intrusions from farther up the Mississippi River Valley. Multi-mound construction and artifact assemblages are evidence that link the two. Absence of European trade goods indicates that the Plaquemine culture reached its zenith prior to European contact (Neuman 1984:258-259).

The late prehistoric culture history and chronology of the eastern portion of the Louisiana coastal zone is not well understood at present (Jeter and Williams 1989:191). The data indicate that local Plaquemine populations in the region developed out of the Transitional Coles Creek/Plaquemine beginning at roughly A.D. 1200 (Jeter and Williams 1989:191-195; Weinstein 1987). At roughly the same time, however, Mississippian ceramics (and possibly peoples), which are identified with the Pensacola variant of Mississippian culture, enter into the area from the east, presumably via the Gulf Coast. Sites in the eastern coastal zone with shell tempered pottery in large quantities are identified with the Bayou Petre phase, while late prehistoric sites in the area without shell tempered pottery, and which show evidence of more Lower Valley ceramic characteristics, are identified with the so-called Delta-Natchezan phase. Although these Mississippian ceramics tend to be found primarily in the easternmost part of the region, Mississippian Bayou Petre phase pottery is not wholly confined to this region (McIntire 1958). To further complicate the picture, there is increasing evidence that the late prehistoric populations in the Barataria Basin integrated some of the Mississippian designs and styles into the local ceramic repertoire (Davis and Giardino 1981).

The Plaquemine occupation of the Barataria Basin and adjacent parts of the coastal zone is designated the Barataria phase. This phase was defined by Holley and DeMarcay based on amateur excavations conducted at the Fleming site (Holley and DeMarcay 1977; Manuel 1984). Fleming consists of at least one earth and shell mound, and a shell midden (Holley and DeMarcay 1977:4; Weinstein 1987:96). The Fleming site is one of three apparently contemporary occupations at the junction of Bayou Barataria and Bayou Villars. The Isle Bonne and Bayou Villars sites also consisted of earth and shell middens and mounds (Gagliano et al. 1975:24, 58,

1979; Holley and DeMarcay 1977; Weinstein 1987:96). As noted by Weinstein (1987:96), "this large mound complex forms the hub of the Barataria phase."

The Barataria phase is differentiated from the contemporary Medora phase of the Mississippi Valley by the absence of Plaquemine Brushed pottery and by the extensive use of so-called Southern Cult motifs in association with typically Lower Valley pottery such as Anna Incised and L'Eau Noire Incised (Holley and DeMarcay 1977; Weinstein 1987:96). The Barataria phase ceramics, however, are otherwise Plaquemine in composition. Major types and varieties associated with this phase include L'Eau Noire Incised, *vars. L'Eau Noire* and *Bayou Bourbe*, Carter Engraved, Maddox Engraved, and Mazique Incised, *var. Manchac* (Holley and DeMarcay 1977:14-18).

With the decline of Moundville and its influences across the Gulf Coast in the later part of the fifteenth century, the deltaic part of the coastal zone saw once again a renewed emphasis on indigenous styles in ceramics. The so-called Delta Natchezan phase represents the final late prehistoric phase in the region. Ceramics of this phase show a strong continuity from the Barataria/Bayou Petre phase occupations in the region, with the addition of pan-Lower Valley varieties such as Fatherland Incised, *vars. Fatherland* and *Bayou Goula*. Shell tempering continues as an important, but not unique, characteristic in the ceramics from the region (Giardino 1985).

The Bayou des Familles channel appears to witness an increase in occupation frequency during the late prehistoric and into the historic periods (Beavers 1982b; Franks and Yakubik 1990; Fuller 1991; Swanson 1991; Yakubik 1989). Mississippi period sherds at a number of small shell middens along the bayou suggest that either larger populations were exploiting the region, or that they were visiting the area more frequently. None of the Mississippi period sites are large, nor do they show evidence of the building of typically Mississippian site plans or features (mounds, mound-plaza arrangements). The radiocarbon dates from the Bayou Des Familles site (16JE218), in conjunction with the ceramic assemblage, however, demonstrates that both shell tempered and clay/Addis pottery were being used at the same time.

The eastern coastal zone does not witness very dramatic changes in settlement during the post-Coles Creek era. Several important trends become evident, however. First, we see an expansion of settlement into more recently formed marsh areas and along peripheral distributary channels adjacent to the essentially modern course of the Mississippi River. Sites such as Buras Mounds (16PL13) and Bayou Ronquille (16PL7) are good examples of this trend (Kniffen 1936; Weinstein 1987). There is also an evident pattern of nascent settlement coalescence focusing on relatively centralized, frequently mounded, communities. In the eastern coastal zone, we see the formation of a small number of large mound groups that appear to be the central focus of occupation in the region. Other than these mound sites, though, large late prehistoric sites are not especially evident. Bayou Petre and Delta Natchezan non-mound sites are small, and generally are associated with well-elevated stretches of levees. The typical Coles Creek marsh adaptation appears to have been abandoned for one presumably more focused on the cultivation of domestic crops in well-drained areas.

The subsistence and sociopolitical organization of the late prehistoric period is not well documented. A small amount of corn was recovered from uncertain contexts at the Fleming site. Analysis of the fauna from Sims indicates that the later prehistoric inhabitants of the site were exploiting a narrower range of animals, and were placing less emphasis on marsh species, notably alligator and muskrat. At Pump Canal (16JE27), however, the post-Coles Creek occupants appear to have been carrying on with a marsh oriented subsistence patterns, focusing on muskrat, raccoon, deer (to a lesser extent), fish, and amphibians (Misner and Reitz 1994 and Smith 1996). This late prehistoric occupation (or occupations) appears to have been relatively transient and may represent the shift from village type occupations to more temporary, possibly seasonally oc-

cupied, camps. Changes in faunal exploitation and settlement type at Pump Canal appear to correlate with changes in local environments (Jones et al. 1994). Ethnohistorical data from the region suggest that the Chitimacha Indians practiced a mixed fisher-farmer-collector subsistence strategy. Maize and other cultigens were planted on elevated plots of land, frequently along bayous, with populations periodically (perhaps seasonally?) ranging out to marshes and lakes to gather shellfish and to fish. In the early historic period, the Chitimacha evidently moved in mixed-sex family groups, and they may have spent much of the summer away from their garden plots.

There is little doubt that the late prehistoric Indians of the eastern coastal zone were living in stratified chiefdom level societies at the time of early European contact. Weinstein and Kelley (1992) suggest a hierarchically organized settlement pattern for the late prehistoric communities in the Terrebonne marsh area, involving mound communities, lesser villages, and seasonal resource collecting stations or camps. Along Bayou Lafourche, Altschul (1978) identified two temporally distinct patterns, corresponding to what are identified as Plaquemine and Mississippian cultural occupations. The earlier, Plaquemine pattern evidently involved a seasonal pattern of movement focusing on a centralized fall/winter community located on interior forested levees, with spring/summer occupations consisting of dispersed habitations spread across most major landforms, but especially emphasizing the exploitation of marsh and coastal resources (Altschul 1978:184-186). Evidence for status differentiation in and among these communities is minimal (Altschul 1978:186). The second pattern described by Altschul is associated with the "Mississippian" occupation of the region (1978:186), with large, sedentary mound communities occupying elevated levees. Altschul hypothesizes that "a sizable proportion of the villagers lived in dispersed homesteads" (1978:186). He further infers that, "While there is no definitive evidence, the location and complexity of these sites indicates that plant domesticates were heavily utilized" (Altschul 1978:186).

CHAPTER 4

HISTORIC CONTEXT OF THE PROJECT AREA

The proposed borrow pit is located in T15S R23E Section 2 and T14S R23E Section 62. Unquestionably the area would have been subject to periodic inundation from the Mississippi River prior to construction of significant levee and drainage systems. It is an area of Sharkey clay, a poorly drained, very slowly permeable, firm mineral soil formed in clayey alluvium. Sharkey soils develop in low and intermediate positions on the natural levees of the Mississippi River and its distributaries, in this case, on the natural levee backslope of Bayou des Familles. Elevation of Sharkey clay ranges from about one foot to five feet above sea level, with a slope of less than one percent. The 5-foot contour line (indicating five feet above mean sea level, as shown on the 1891 USGS New Orleans, LA topographical map) was very approximately parallel to the extension of the Woods Place Canal that crosses Section 62 and Section 2 in an approximate north-south alignment, intersecting the current project area in Section 62 and then running roughly parallel with the modern levee immediately west of the potential borrow area. The Sharkey clays formed well below the level of mean annual high water elevation of the Mississippi and, for the most part, below the mean annual water elevation of the Mississippi River (Matthews 1983). As indicated on historic maps, the natural vegetative cover of the study area prior to logging and agricultural development was forest, likely with bald cypress, sweetgum, swamp red maple, carolina ash, nuttall oak, American elm, dwarf palmetto, and other water-tolerant species predominating (Matthews 1983; Goodwin et al. 1989:6-8; Swanson 1991; Yakubik et al. 1996:11-22).

The historic land tenure of much of the Barataria region is complex. Several large tracts in the area were granted and then re-granted during the colonial period, and subsequently, title disputes arose. Portions of Section 62 in T14S R23E and Section 2 in T15S R23E are among the areas over which title disputes arose in the nineteenth century. Both of the relevant sections were at the approximate northern rear line of a large eighteenth-century grant in the Barataria region. The grant was made by the Company of the Indies on June 14, 1726 to the partnership of Jean-Baptiste Massy, Jean-Baptiste Bourbeau, and Charles Frederig de Merveilleux. The boundaries of this grant bear no direct relationship to the U. S. section lines in this area because the area was re-granted several times during the colonial period. The Massy tract extended 120 arpents (4.4 miles) northerly from Bayou Barataria and 120 arpents southerly from the bayou, measuring 40 arpents (7680 feet or almost 1½ miles) front on both sides of Bayou Barataria. Massy's grant was centered near the confluence of Bayou Barataria and Bayou des Familles. Prior to receiving their grants, the partners had been under contract with the Company of the Indies to cut oak and ash and deliver the logs to the Mississippi River, and it was probably their intention to harvest timber on the Barataria tracts. Massy was a well-known and respected colonist and had previously owned concessions at Pointe Coupee and on the Chapitoulas coast, and engaged in various commercial and agricultural pursuits. The 1726 census indicated that he was residing part-time on his Barataria tract. The same year his partnership received the Barataria grants, Massy was elected syndic for the colonists to arrange for compensation to slaveholders whose slaves had been executed by the colonial government for criminal activity. By 1727, Massy lived on the Barataria tract with an orphan boy and 27 slaves, while Bourbeau had nine engagés and six slaves at Barataria on his own tract. Massy soon dissolved the partnership with Merveilleux, and Bourbeau was killed in the Fort Rosalie massacre at Natchez in 1729. Massy planted cotton and tobacco and raised livestock on the Barataria tract, as well as cutting timber. The 1731 census indicated Massy residing on the Barataria habitation with one young woman, two engagés, three "men capable of bearing arms," 30 adult slaves, and 21 slave children. Massy apparently married the young woman, Jeanne Faucon Dumanoir, at a later date. One of the white men was likely Joseph Cazenave, Massy's steward. The plantation complex was situated near modern Crown Point on the eastern side of Bayou Barataria and at Massy's death in 1734 consisted of the main dwelling house, the steward's house, ten slave cabins, a cotton storehouse,

a small tobacco storehouse, and two tobacco curing houses (Goodwin et al. 1989:20, 23; Giraud 1987:322-323; Swanson 1988:84; Swanson 1991:15).

The current project study area was some 3½ miles from the center of Massy's habitation and it is impossible to say whether logging at this early date had any impact in the vicinity. Unverifiable and undocumented speculation to the contrary, it is highly unlikely that during Massy's ownership of the property any agricultural improvements were made at this distance from his farm buildings.

Following Massy's death, his widow married Gilles Augustin Payen, Chevalier de Noyan, Major of New Orleans, who ceased to cultivate the Barataria tract. Noyan and Benoist Payen, Chevalier de Chavoye, utilized the Barataria property as a horse ranch for nearly two decades after Massy's death. In 1736, Noyan unsuccessfully petitioned for the concession of Massy, Merveilleux, and Bourbeau to be regranted to himself, but by 1744 the tract was effectively abandoned by all but Chavoye's livestock caretaker. In 1761, Chavoye and Claude Dubreuil fils both petitioned Governor Kerlerec to re-grant the Massy tract, but instead the combined 120 arpents-front tracts of Massy, Merveilleux, and Bourbeau were subdivided into six 20-arpent tracts, one of which was granted to Chavoye and the others to sieurs Dezillest, Verdun, Dubourg, De Trant, and Dauterive. By 1762, Jean Antoine Bernard Dauterive, a military officer, had consolidated five of the six tracts, for a total frontage of approximately 90 arpents on both sides of Bayou Barataria. Dauterive resided in New Orleans, and besides his Barataria tract where he raised indigo and livestock, he acquired extensive properties on the Mississippi River and in the Attakapas District. In 1768, Dauterive subdivided the 90-arpent front tract. He sold four contiguous 10-arpent front tracts to the partnership of Antoine Boudousquié and Elie (or Hery) Hugues. In the tracts Boudousquié and Hugues acquired were Dauterive's buildings, 100 head of cattle, 100 head of sheep, 20 swine, 60 piglets, and two enslaved Native Americans. One of the slaves, named Pompée, was a hunter and herder; the other slave, named Marianne, was a female adolescent or child (Swanson 1991:53-54).

The main interest of Hugues and Boudousquié in Barataria was probably fur-trapping. Hugues sold his one-half interest in the Barataria tract in 1772 to Alexander Guerbois, and two years later Guerbois and Boudousquié dissolved their partnership. They partitioned one half of their 40-arpent front tract and sold the other half, which was acquired by Pedro Albert Bonne in 1774. At the upper or northern side of the former Massy or Dauterive tract, the 20- by 110-arpent property acquired by Bonne contained the buildings, fields, fences, cattle, horses, sheep, swine, and tools present on the property, and encompassed the current project study area. Bonne grew indigo, raised sheep, and engaged in the lumber business. In addition to his 20-arpent front tract in Barataria, Bonne held an eight-arpent front tract on the Mississippi River. In 1779 the Spanish administration of the colony began to acquire property in the Barataria region on which to settle Canary Islanders immigrants (Isleños), purchasing some tracts and obtaining others by eminent domain. Prior to May 14, 1779, Pedro Bonne sold to the Spanish Crown one-half of his Barataria holding, measuring 10 by 110 arpents. On the same date he sold the adjacent tract to Luis Pellerin. Pellerin sold this tract to Andrès Jung, Commandant of the Canary Islander settlement at Barataria. Jung donated the second Bonne tract to the Spanish Crown on July 12, 1779. The Crown repossessed additional, vacant adjoining lands in this vicinity for distribution to the Isleños, including back lands of the former Boudousquié, Guerbois, and Dauterive tracts (Swanson 1988:85-86; Swanson 1991:57, 59-60; Goodwin et al. 1989:23). The current project area is within the large area the Spanish crown planned to distribute among the Canary Islander settlers (Figure 3), which was centered approximately on Bayou des Familles and which was bounded on the north by a line extending east from a point near the confluence of bayous Dauphin and Boyes, and on the south by Bayou Barataria west of modern Crown Point (Yakubik et al. 1996:108).

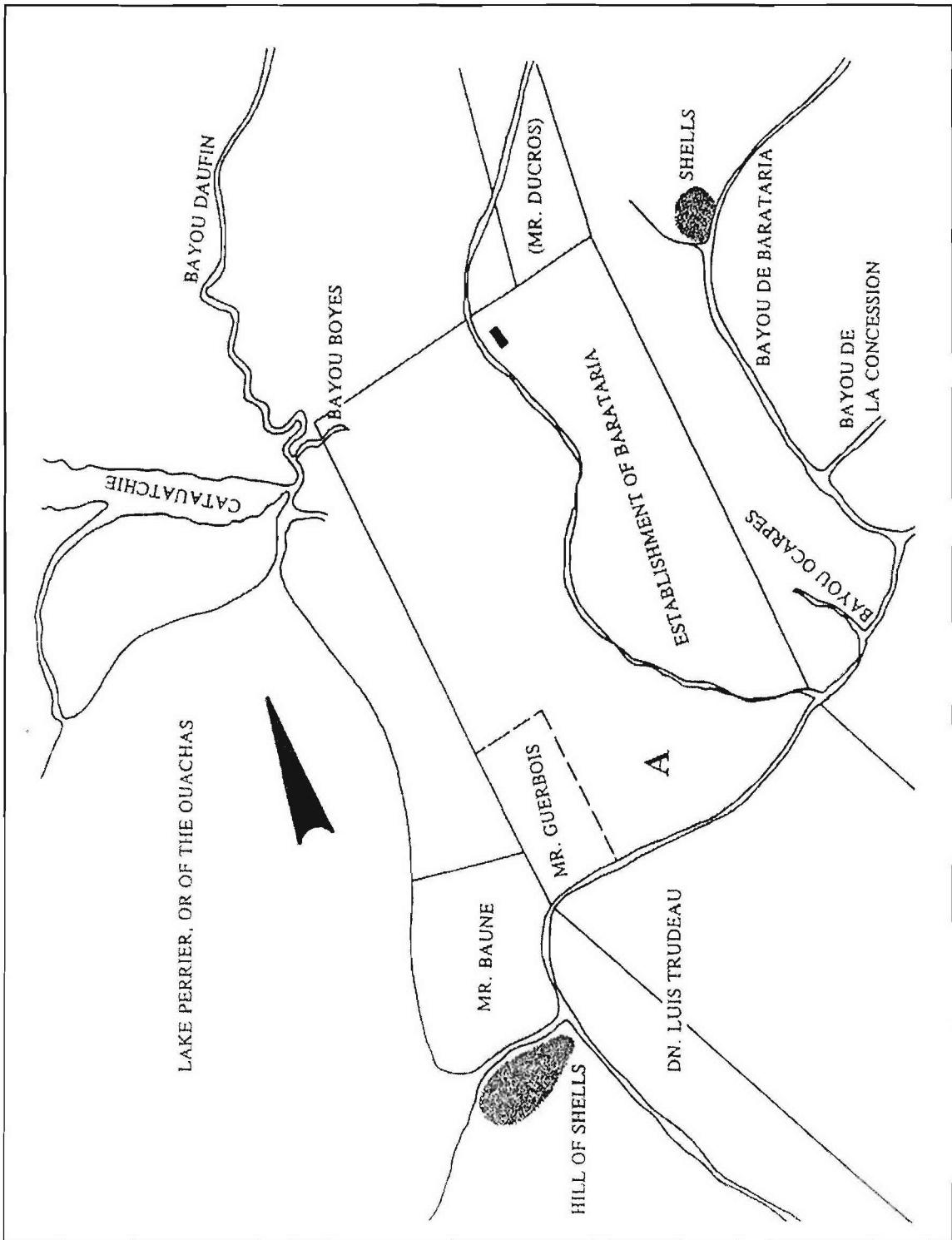


Figure 3. Excerpt from *Plano de Las Concessiones Desde La Ciudad de Nueva Orleans Hasta Bayu Sn. Juan, La Metairy, Chapitouas Y Barataria* (ca. 1779) (redrawn), showing the Bayou des Familles area (from Yakubik et al. 1996:108).

The Población de Barataria or Barataria Settlement was a dismal failure, since the colonists were unable to contend with the environmental challenges of the Barataria region. After a hurricane in 1779, a crevasse in 1779-1780, another hurricane in 1780, and heavy flooding in 1782, many of the Canary Islanders decided to leave the area. By 1785, most of the Isleños had departed for the San Bernardo settlement. The total population of the Barataria District by 1788 was only about 40 persons: 25 whites, 11 Free Persons of Color, and four African or Creole slaves. Heavy flooding in 1796 and 1802 caused further abandonment of Barataria lands (Yakubik et al. 1996:111-114). Figure 4 shows the Barataria region as depicted by Carlos Trudeau in 1803.

After the departure of the Canary Islanders, some of the vacant Barataria tracts were regranted by the Spanish colonial administration. The current project area is located within an area regranted during the 1790s. On August 21, 1794, Nicolas Daumé received a grant of 12 arpents on the downstream side of Bayou des Familles and on October 15 of the same year, Antonio Vart received a grant of 15 arpents on the upstream side. Although not corresponding to U. S. section lines, these tracts were in the vicinity of Section 1, 2, and 37 in T15S R23E and encompassed the current project study area. Christopher Lartique later acquired these two tracts from Vart and Daumé. On May 11, 1797 Jean-Baptiste Fleuriau, an aguacil mayor and regidor in the Spanish administration, received a 40-arpent front grant along both sides of Bayou des Familles, for a total superficial area of 320 arpents. The tract was described as being "at a place called Quartier des Familles on the right bank of a bay called by the same name, 6 miles from the Mississippi River...bounded on the north by lands of Francis Dauphin, on the south by lands of the widow Pablo, on the east by the above mentioned bayou, and on the west by vacant land" (Maduell 1975: 63). Fleuriau also acquired the Vart and Daumé tracts, for a combined Barataria property of 1,509 superficial arpents. The transactions for these tracts were attested to before Enoul Dugay Livaudais, who then went before the U. S. land commissioners to verify the claims and transfers of property (Swanson 1991:94-96; Maduell 1975: 63). Charles Fleuriau died at the age of 80 in 1810, and his wife, Jeanne Dubreuil Villars died in 1807 at the age of 63. Their daughter, Jeanne Fleuriau de Morville, was married to Joseph Enoul de Livaudais on February 1, 1781 (Nolan 1993; Villere 1941).

The date of the purchase of the property by Pierre and Marthonne Dauphin from the former Fleuriau is not known since the succession papers of Pierre Dauphin could not be located at the time of this study. However, it is known that François Dauphin acquired the property on November 23, 1805, following the succession of his father, Pierre Dauphin, who died on March 8, 1804. His mother, Marthonne (Marton, Marta or Maria) Dauphin, died in March 1805 (Nolan 1993). Included in the succession of Pierre Dauphin were 60 long-horn cattle, six covers of silver, six shovels, six picks, and six axes. Also included were 10 slaves: Jean, Louis, Frosine, Mande, Terre, Eugene, Antoine, Bouvard, Vital, and Genevieve (Act before Narcisse Broutin, notary, November 23, 1805, NONA).

Marie Josephe Philibert Rochejean acquired the Dauphin plantation of 52 arpents facing Bayou des Familles and 40 arpents in depth from François Dauphin on December 16, 1805, for a consideration of 1,300 piastres (Act before Narcisse Broutin, notary, December 16, 1805, NONA). The plantation, as previously surveyed by Barthélémy Lafon, was bounded by the tracts held by Louis Bouligny and the heirs of Dauterive. Included in the sale were 60 long-horn cattle. Two years later in 1807, Rochejean died and left the property and the guardianship of his six year-old daughter, Palmyre, to Josephe Enoul Duguyé Livaudais, the same gentleman who verified Fleuriau's land claims in 1797 and who married Jeanne Fleuriau de Morville. Palmyre was sent to relatives in France and the Barataria property was sold by Livaudais on August 26, 1813 to Bernard Villars, for 3,000 piastres. This sale became a legal challenge to later purchasers, since according to Louisiana's legal code at the time of sale, a guardian and/or administrator of an estate could not sell the property to which he was entrusted. The fear was that upon reaching age of majority, dispossessed heirs would sue to get their property back. To ensure that this

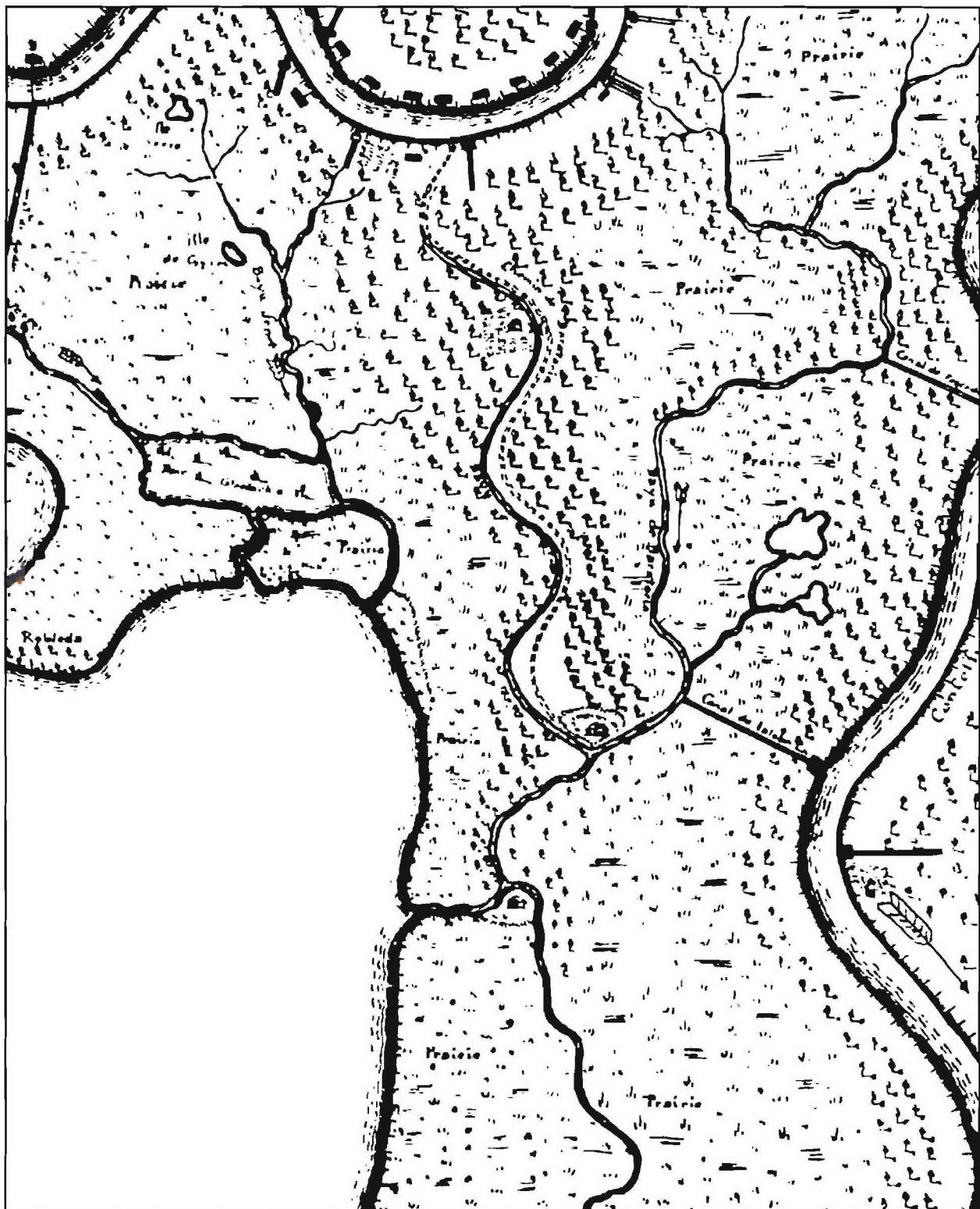


Figure 4. Excerpt from *Plan del Local de Las Tierras Que Rodean La Ciudad de Nueva Orleans* (1803) by Carlos Trudeau, redrawn by F.S. porter in 1936 for the WPA, showing the Bayou des Familles area (from Swanson 1991:92).

did not happen, the code was changed to stipulate that after having reached the age of majority, an heir had four years from that date to pursue any legal recourse. In regards to this individual case, Palmyre Rochejean was never heard from again, and therefore made no legal claim to the property after 1826 (Act before M. Lavergne, notary, October 28, 1824, NONA).

This next set of conveyances begin a complex and more convoluted portion of the chain of title for the project area. On October 8, 1818, Bernard Villars sold a 15 by 40- arpont section of the property to Josephe Léon Trudeau and Pierre St. Pé. Two weeks later, Bernard and his brother, Jean-Baptiste Dubrueil Villars, sold the remaining 37 by 40-arpent section to the same two gentlemen, Trudeau and St. Pé (Act before Narcisse Broutin, notary, October 8, 1818, NONA; Act before P. H. Pedesclaux, notary, October 23, 1818, NONA). Since Dubrueil Villars is mentioned as co-vendor in the October 23rd act, it is assumed that at some point he bought into the plantation venture with his brother, Bernard, although it is not specifically mentioned in any of the notarial acts. On September 6, 1821, Trudeau sold his undivided moiety of the 52-arpent plantation and its establishments and appurtenances, along with the undivided moiety of eight slaves, to Mosses Duffy (Act before P. H. Pedesclaux, notary, September 6, 1821, NONA). Two years later, in 1823, Duffy turned around and sold the undivided moiety of the land and eight slaves back to Bernard and Jean-Baptiste Dubrueil Villars (Act before H. Lavergne, notary, February 14, 1823, NONA). The Villars' undivided interest in the plantation was sold that same day before the same notary by the Villars brothers to Louis Boisclair Chauvin Deléry, Omer Fortier and Barthelèmy Deléry. The interests of the three were divided in the following manner: Louis Boisclair Chauvin Deléry acquired 3/8 interest; Omer Fortier acquired 3/8 interest; and Barthelèmy Deléry acquired 1/4 interest (Act before H. Lavergne, notary, February 14, 1823, NONA). Pierre St. Pé still retained the other half of the interest in the entire property.

Between the period of February 14, 1823 and October 28, 1824, two of the interest holders in the relevant Barataria tract died: Omer Fortier, who left three minor children and a widow, who was his partner in acquest and gains; and Pierre St. Pé, who died insolvent. Sometime between 1824 and 1830, however, Widow Fortier married Jean-Baptiste Dubrueil Villars. In a meeting of the remaining shareholders (Louis Boisclair Chauvin Deléry, Barthelèmy Deléry, and Widow Fortier) and St. Pé's creditors, it was decided to sell the entire property at public auction. The highest bidder was Barthelèmy Deléry, and in September 1824, he became the sole owner of the Barataria plantation. On that day he sold 7/8 interest each to Louis Boisclair Chauvin Deléry and Widow Fortier, so that each had 7/16 interest of the whole plantation. On September 13, 1824, Barthelèmy Deléry also sold his remaining 1/8 interest to Prosper Grouard, who then sold it to Louis Boisclair Chauvin Deléry in 1830 (Act before Charles Janin, notary, January 22, 1830, NONA; Act before H. Lavergne, notary, October 28, 1824, NONA). Thus, after all of the exchanging of interests, as of 1830 9/16 of the plantation was held in title by Louis Boisclair Chauvin Deléry and the remaining 7/16 by Jean-Baptiste Dubrueil Villars and his wife (Widow Fortier). Figure 5 shows the current project area in 1829. It is interesting to note that three maps of the Bayou des Familles plantations, surveyed in 1842 (Figures 6, 7, and 8), show the Deléry brother's property under the name "Boisclair". It is unclear as to whether this was the name of the plantation, or if the name was used to identify the majority owner of the property, Louis Chauvin Deléry. The name "Boisclair," however, is not mentioned in descriptions of the plantation in conveyance acts.

The U. S. Township maps in the Jefferson Parish Courthouse indicate that in 1833 "section 100" of T14S R23E (which no longer exists on modern maps) was an object of conflict in the claims of Marie Josephe P. Rochejean and John McDonogh. McDonogh, a wealthy real estate speculator originally from Baltimore, Maryland, acquired extensive properties in New Orleans and the surrounding area, including numerous tracts in Barataria. Several of the properties he purchased, however, did not have clear titles or claims, which was actually a part of his real estate strategy. After purchasing properties with questionable titles, he would then acquire surrounding tracts with clear titles, and thereby substantiate his claims to all of the properties.

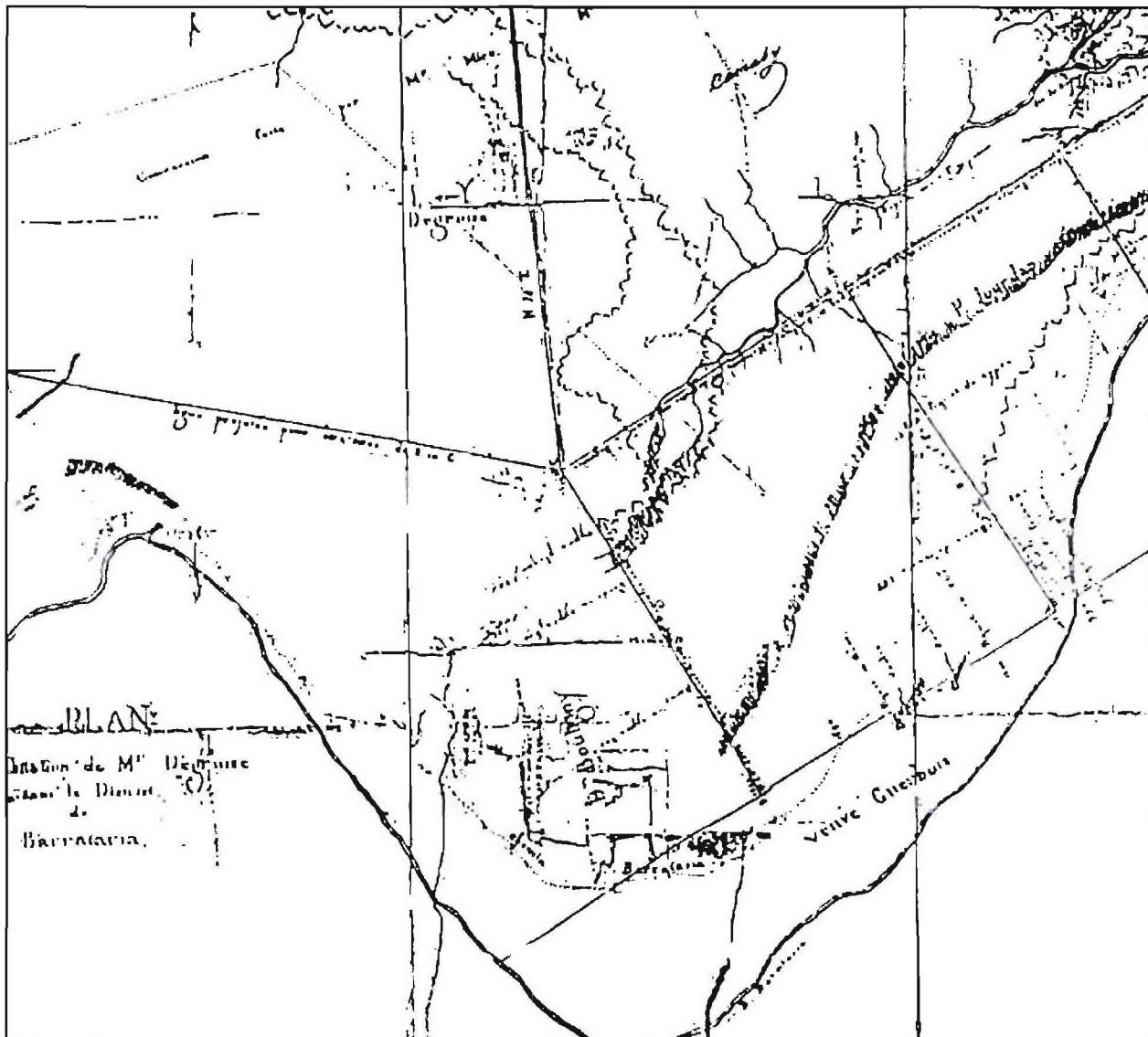


Figure 5. Excerpt from *Plan de L'Habitation de Mr Degrusse Dans Le District de Barataria* by J.A. D'Hemecourt (1829). North is to the left, and the vicinity of the current project area is in the lower left-hand corner (from Goodwin et al. 1989:26).

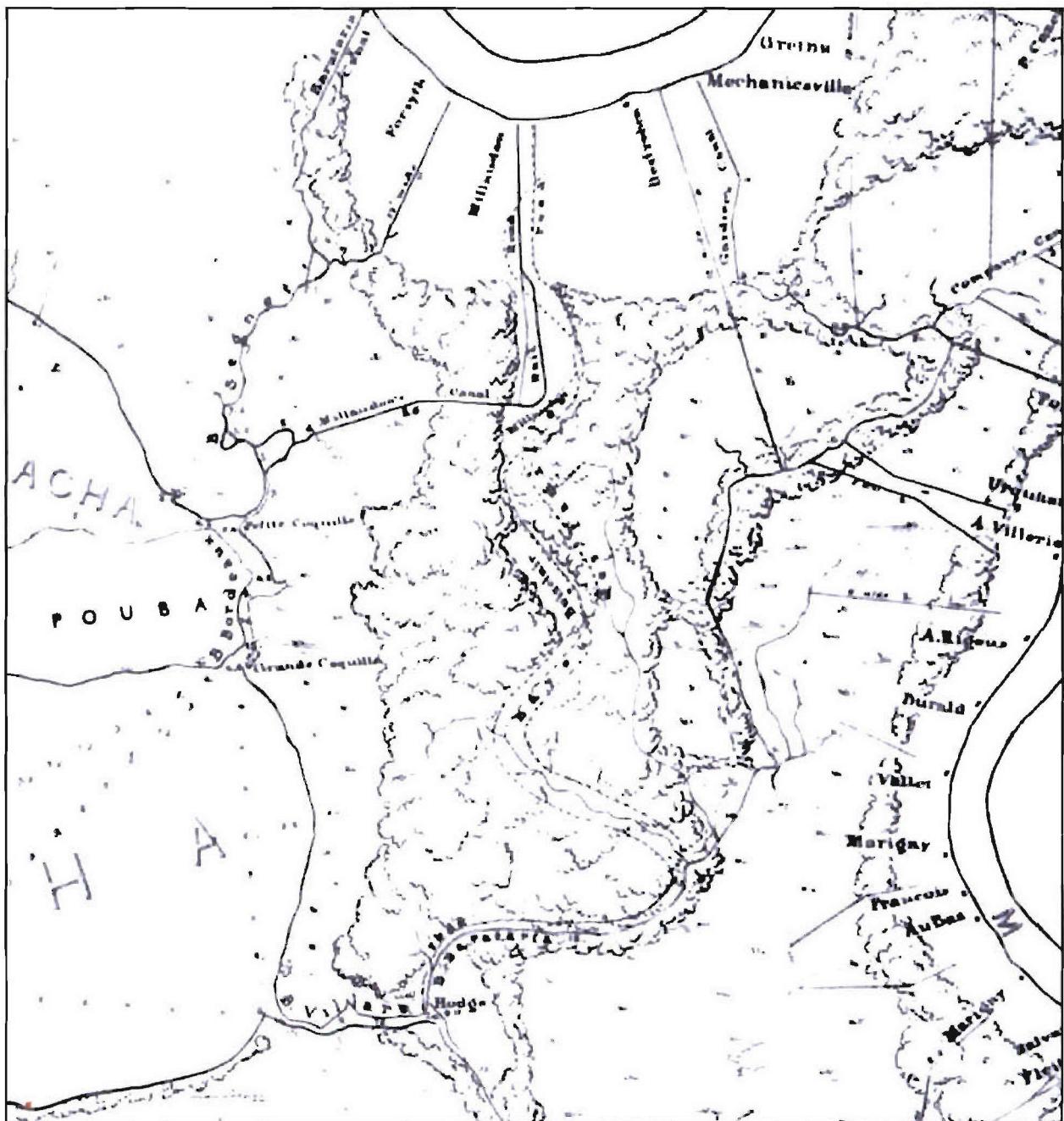


Figure 6. Excerpt from *Map of a Military Reconnaissance and Survey of the Approaches to New Orleans from the Gulf of Mexico* by Captain G.W. Hughes et al. (1842) showing the Bayou des Familles area. The vicinity of the current project area is shown as wooded, and the Ross Canal and Woods Place Canal are not depicted. A cleared area east of the project area along Bayou des Familles is labeled "Boisclair" (from Swanson 1991:102).

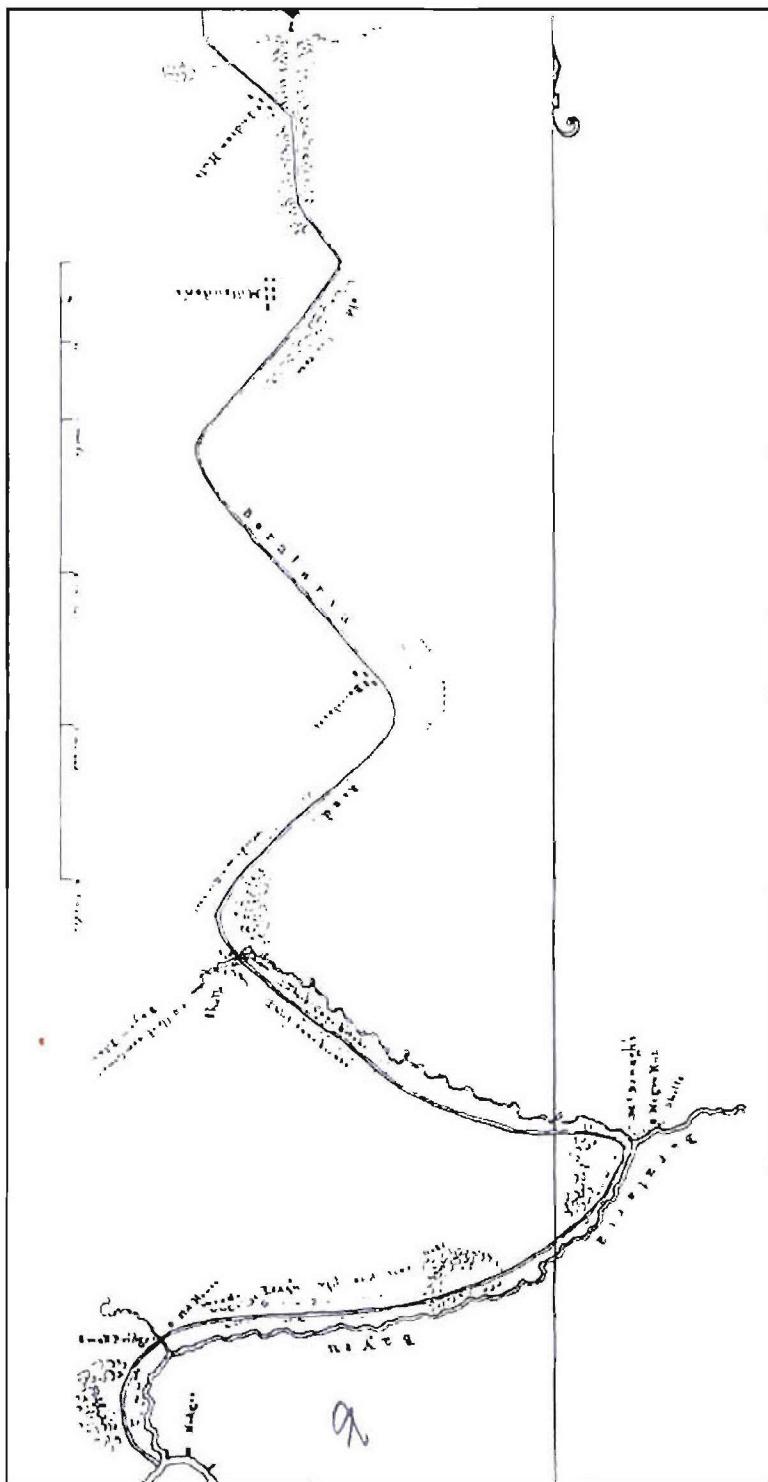


Figure 7. Excerpt from a survey of the Barataria Road by J.J. Williams (1842), done in preparation for the Hughes Map (1842) (Figure 6). The plantation complex of "Boisclair" is indicated in the general location of the later Ross and Carter plantation buildings (from Swanson 1991:148).

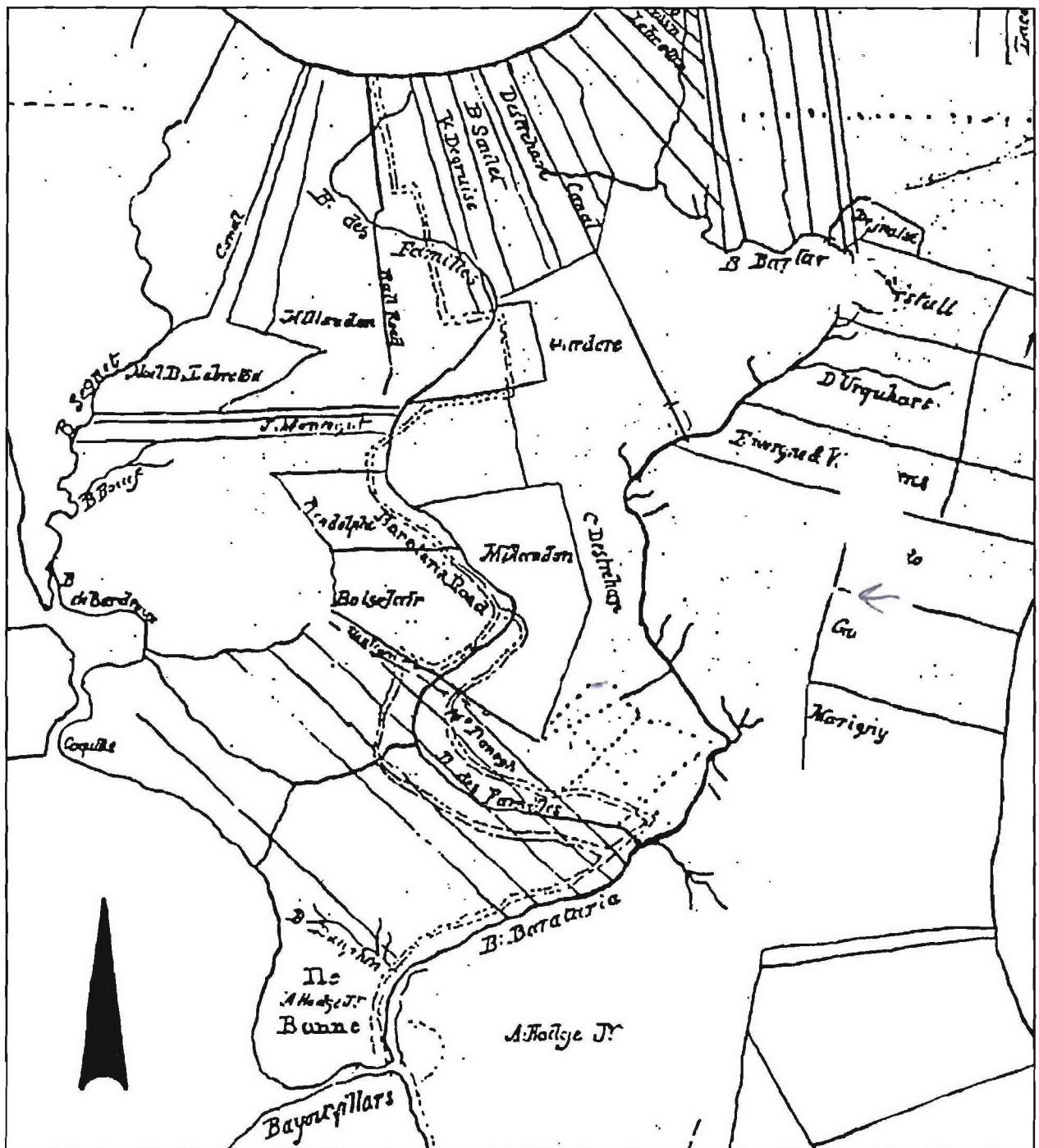


Figure 8. Excerpt from a map by M.H. Warner and R.P. Baker dated 1842. "Boisclair" is indicated as the occupant or name of the plantation on the Deléry-Villars tract, later the Ross and Carter plantations (from Kelley and Bryant 1986:19).

McDonogh bought what he believed was the entire property of Jean-Baptiste Dugruy from Sosthene Roman, syndic to the creditors of Dugruy, at an unknown date. This tract included a rectilinear parcel situated on the right (descending) bank of Bayou des Familles which included the area of "Section 100" and a triangular sliver of land located in the southwest of Section 2 of 15S R23E, encompassed in modern Section 2 of T15S R23E and Section 62 of T14S R23E. What McDonogh believed was the entirety of the Dugruy tract in (modern) Section 2 actually encroached upon Rochejean's claim. The Rochejean claim of all of Section 2 was ultimately upheld by the U. S. Land Claims office. McDonogh's claims in this area also encompassed the claims of Pierre Foucher and Marie Dauberville, although both of these lie outside of the study area (Township Plats, n.d., Jefferson Parish Courthouse; Swanson 1991: 112-113; Yakubik et al. 1996: 62; Holmes 1986: 67-74).

In considerable debt after acquiring the plantation, Louis Boisclair Chauvin Deléry and Jean-Baptiste Dubrueil Villars obtained from their creditors "an amiable and extrajudicial respite" for the payment of their debts and mortgages. However, Mrs. Dubrueil Villars died in 1834, leaving three heirs from her first marriage to Omer Fortier. Since she was a partner in her second husband's financial affairs and her monies from her first husband helped to repurchase the plantation, the heirs asked for recompense for the 3/16 interest that were hers, and were paid a sum of \$4,687.50 for them. By 1845, the financial situation had become unmanageable: Louis Boisclair Chauvin Deléry was named an insolvent debtor; Jean-Baptiste Dubrueil Villars died, and his estate was thus unable to maintain his percentage of the mortgage. On January 2, 1846, Louis Didier Villars, administrator of the insolvent succession of Jean-Baptiste Dubrueil Villars, and Bernard Soulié, sole syndic of Louis Boisclair Chauvin Deléry's creditors, agreed to offer the plantation up for sale at public auction. The property was described as being four leagues from New Orleans, 50 arpents front and 40 arpents in depth, bounded above by the property of Daniel and Jonathan Osborn, and below by the property of John McDonogh and Volant Labarre. A total of 650 arpents were in cultivation and 65 slaves resided upon the property. James Waters of New Orleans purchased the property as the highest bidder, and the plantation were signed into his name in July of 1847 (Act before Louis T. Claire, notary, July 6, 1847, NONA). At this time that the property was surveyed by Allou D'Hémécourt, and all questions regarding the original sale of the property from Livaudais to Bernard Villars were answered in the details of the Act referred to above.

James Waters held onto the complete property until March 9, 1848, at which time he sold half of the interest to Jesse Wood Ross, formerly of Hamilton County, Ohio and a merchant in New Orleans, for \$35,439.57. The purchase included the undivided moiety of improvements including sugar mills, sheds, sugar houses, two sets of kettles, a surgery, cisterns, stables cooper's and blacksmith's shops, negro cabins, grist mill with horsepower, dwelling house, and overseer's house with gardens. Also included were 10 horses, 17 mules, 36 oxen, 12 milch cows, 20 calves, a small flock of sheep, 40 plows, 15 harrows, 13 carts, spades, hoes, scaws, blacksmith's tools, and 65 slaves (Act before John Cragg, notary, March 9, 1848, NONA; Biographical 1975: 355). The remaining half interest was sold to Ross on April 19, 1850. The sale included the remaining half interest of 71 slaves, upon whom there was a stipulation that stated the slaves were not to be sold or removed from the plantation "to the prejudice of the mortgage" (Act before John Cragg, notary, April 19, 1850, NONA).

The 1850 U. S. Agricultural Census indicates that Ross had 700 improved acres and 800 unimproved acres, for a total cash value of \$30,000. On the plantation, there were eight horses, 23 asses and mules, 20 milch cows, and 38 working oxen, all of which was valued at \$5,000. In addition to 300 hogsheads of sugar and 15,000 barrels of molasses, the plantation had 2,100 bushels of Indian corn, 750 bushels of sweet potatoes, and 110 tons of hay on hand (U. S. Census 1850). Figure 9 indicates sugar production on the plantations incorporating the current project area between 1849 and 1874, the last year a sugar crop was reported for the tract. When Ross

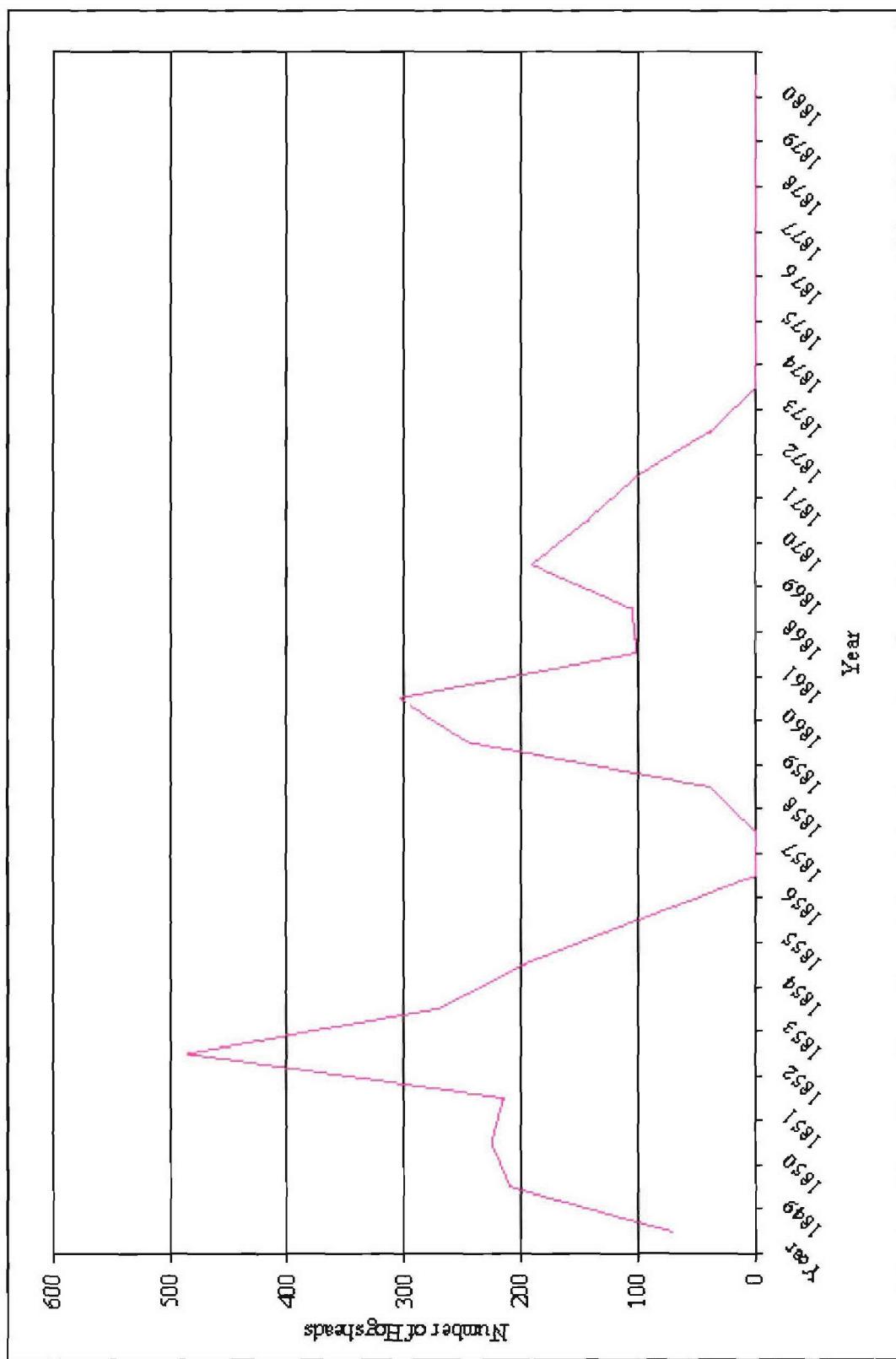


Figure 9. Sugar production at plantations encompassing the current project area (Champomier 1848-1861; Bouchereau 1868-1881).

died in 1855, the land reverted to his widow, Henrietta Ross, who held onto the plantation for two years before selling to Jacob Upsher Payne.

Originally from Kentucky, Jacob Payne was a member of the cotton factor firm of Payne and Harrison, located in New Orleans. The newly purchased sugar plantation would be listed under the name of Payne and Harrison in the Statement of Sugar Crop Made in Louisiana reports. Included in the sale of the Ross property were 30 mules, 2 horses, 36 oxen, approximately 30 cattle, 72 slaves, and “all necessary implements of husbandry, e.g. plows, spades, hoes, carts and seed” for the next year’s crop (Act before Joseph Lisbony, notary, March 6, 1857, NONA; Swanson 1991: 139). The subsequent production reports for the plantation were particularly dismal, and for the first two years the plantation recorded no sugar yield. Unfortunately, weather and natural catastrophe played a large role in the failure. In 1858, the Bell crevasse floods devastated Jefferson, Orleans, and Plaquemines Parishes, and in the following year a severe drought hit in the summer, which caused a delay in the growth cycle of the cane. This in turn caused a delay in the harvesting in the fall, and subsequently the crops were exposed to killer frosts in November and December. Payne was lucky to have produced 38 hogsheads of sugar, as reported in the Statement. The crops of 1860 and 1861, however, rebounded and the plantation yielded 245 hogsheads and 304 hogsheads, respectively (Champomier 1858-1861). Disaster struck again with the onslaught of the Civil War. Figure 10 is a map by D.C. Houston, showing the Barataria region in 1863, and Figure 11 is an 1865 map prepared for the sale of an adjacent bayou tract.

Jacob U. Payne decided to sell his Barataria tract in 1866. On May 25, 1866, William Stackhouse, husband of the former Widow Harriet Ross, purchased the plantation from Payne (Biographical 1975: 355). Stackhouse sold the plantation to John H. Carter the following year, on March 7, 1867 (Act before William Shannon, notary, May 25, 1866, NONA; Act before William Shannon, notary, March 7, 1867, NONA; Swanson 1991: 140). With a wood sugar house and a steam and kettle sugar apparatus, Carter tried to make a go of sugar production, and in 1868 succeeded in producing 101 hogsheads of sugar, 5,250 gallons of molasses, and 600 bushels of corn. Over the next four years, he managed to produce a total of 575 hogsheads of sugar, but some years were worse than others. In 1870, the plantation produced 190 hogsheads, but in 1873, only 38 hogsheads were produced because of heavy rains in spring, drought in summer, and an early killing frost in October (Bouchereau 1868-1873). Due to the fluctuations in the crops and weather, Carter was unable to maintain his mortgage notes to Stackhouse, and the property was seized by the sheriff and placed on the auction block in 1872. The Citizen’s Bank of Louisiana purchased the property and the deed was transferred on March 7, 1874 (2nd Judicial Court No. 3961; Book M f. 687-688, Jefferson Parish Courthouse; Swanson 1991:140).

For the dozen years that Citizen’s Bank owned the property, the land evidently remained unused and fallow. The surrounding plantations also struggled to cultivate profitable sugar crops, most only producing between 30 and 150 hogsheads a year. The Christmas Plantation, owned by P. E. Beauvais, was slightly more productive, but by 1885, after the Davis crevasse and a sugarhouse fire, it, too, was defunct as a profitable enterprise. The previous year, a map of the current project area had been drawn by B. McCleran (Figure 12). In 1885, the property that Jacob Payne had purchased in 1857 for \$61,000 (a total of 2,519 arpents) was sold to Hugo Mehnert for \$10,000. The sale included a dwelling house and outhouse, 15 double frame cabins, one overseer’s house, a large corn house and stable, one hay house, a medium-sized sugar house, and a complete sugar apparatus with various implements and tools (Act before Joseph D. Taylor, notary, March 5, 1885, NONA; Swanson 1991: 140). With the cane fields having lain fallow for so long, Mehnert decided to use the property to log timber and raise cattle. The 1891 *New Orleans, LA* quadrangle map (Figure 13) was drawn during Mehnert’s tenure of the current project area. Notably, neither the Ross Canal nor the Woods Place Canal are depicted. On May 31, 1892, Mehnert sold the plantation intact to his father-in-law, William Rebentisch (Act before John C. Tillotson, notary, May 31, 1892: Swanson 1991: 140). Rebentisch used the property as a cattle ranch as well, until April 17, 1902 when sections 2, 3, 37, 41-48, and 82 in T15S R23E and

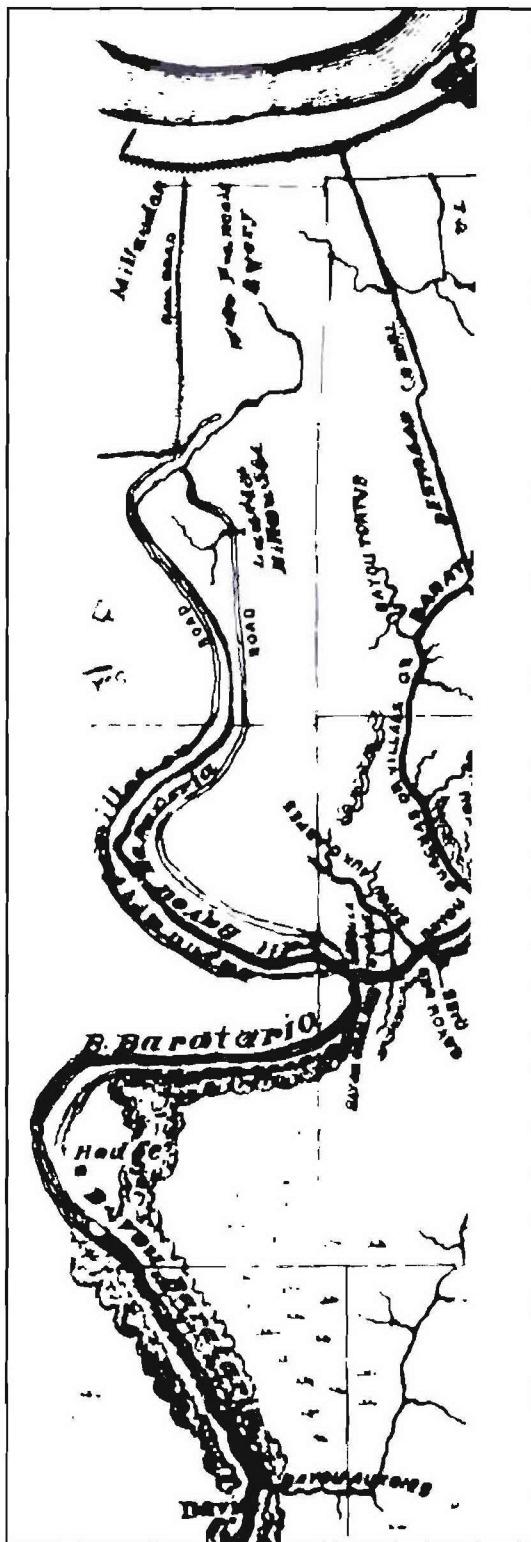


Figure 10. Excerpt from *Military Approaches to New Orleans* (1863) by D.C. Houston, showing the Bayou des Familles area (from Swanson 1991:147).

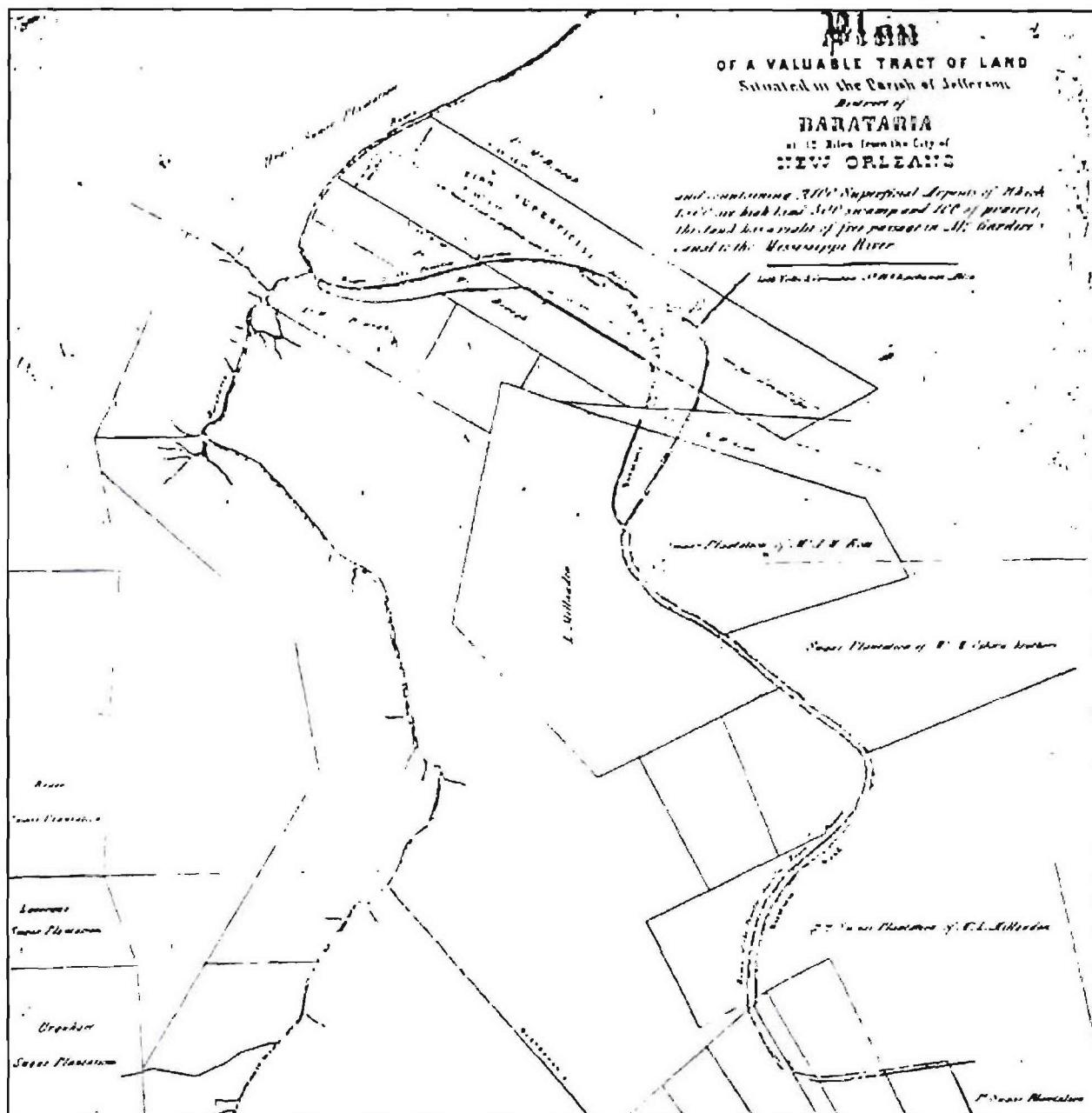


Figure 11. Excerpt from *Plan of a Valuable Tract of Land Situated in the Parish of Jefferson District of Barataria* (ca. 1865), unsigned, printed by Tonti and Carnahan. North is at the bottom. The “Sugar Plantation of Widow J. W. Ross” is indicated but neither the Ross Canal nor the Woods Place Canal is shown (from Goodwin et al. 1989:32).



Figure 12. Excerpt from *Plan of the Carter Plantation, the Property of Mr. Mehnert, Parish of Jefferson*, by B. McCleran (1884). The area corresponding to the natural levee is labeled "open land" and the backswamp is labeled "woods." Neither the Ross Canal nor the Woods Place Canal is shown. The sugar house and other buildings of the plantation complex are indicated (from Goodwin et al. 1989:30).

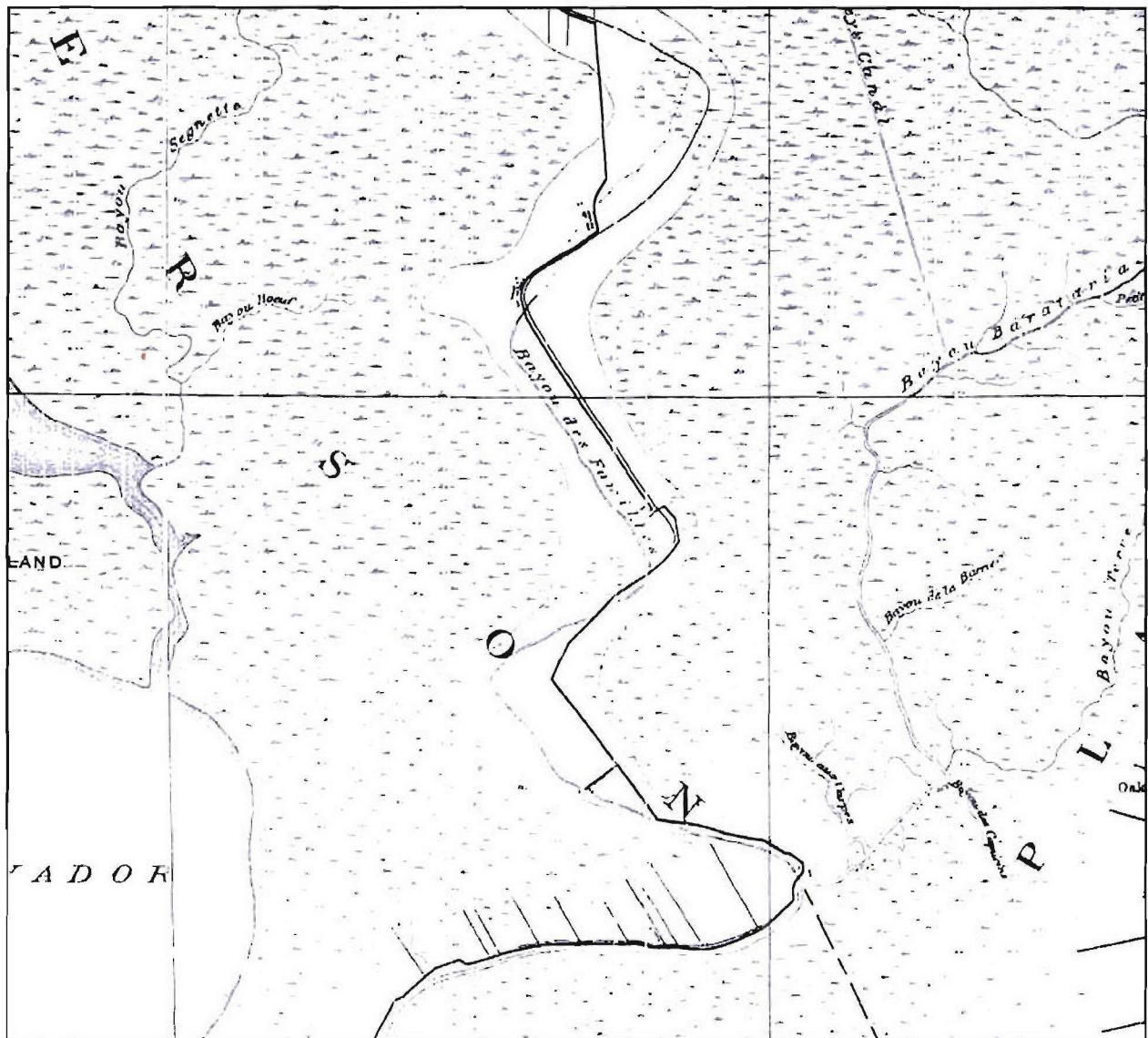


Figure 13. Excerpt from the New Orleans, LA, 1:62,500 topographical map (1891) showing the vicinity of the current project area. Neither the Ross Canal nor the Woods Place Canal is shown.

sections 62, 100, and 101 in T14S R23E, "of the Carter Plantation," were sold along with all rights, buildings and improvements, to George H. T. Shaw of Illinois, for a consideration of \$9,700 (COB 21 f. 375).

On September 23, 1909, Shaw sold "the Carter Plantation," "Pecan Grove Plantation," the southeast quarter and a fractional northeast portion of section 79, a fractional portion of section 78, and sections 83, 84, and 102 in T14S R23E to the Jefferson Land Company for "\$1 and other valuable considerations" (COB 28 f.772). It is interesting to note that Shaw was listed as a resident of Toluca, Mexico, at the time of the sale. The timber on the property was not included in the sale.

By 1919, the Jefferson Land Company found itself in bankruptcy, and under the auspices of its trustee, the Ottawa Banking and Trust Co. of Ottawa, Illinois, was forced to sell the Carter Plantation and Pecan Grove Plantation, plus other land at Barataria to Robert J. Perkins of New Orleans (COB 45 f. 443). In November of 1925, Perkins entered into a two-year lease with the Delaware Louisiana Fur Trapping Co., Inc., who intended to use the land for trapping alligators (COB 71 f. 670). Another trapping lease was made between Mrs. Mary Logan Perkins, executrix of the Perkins estate, and Harry Blackman for the 1933/1934 trapping season. The lease included the use of lands located in sections 62, 63, 64, and lot 5 of section 77 in T14S R23E, and was exclusive to fur trapping only. It also allowed for the hunting of frogs for personal use and consumption, but did not allow for the picking of moss (COB 118 f. 129). Figures 14 and 15 are excerpts from the 1932 *New Orleans, LA* and the 1938 *Bertrandville, LA* quadrangle maps depicting the Barataria region.

In 1946, section 2 of T14S R23E, as well as other tracts in Barataria, were purchased by William Harvey Moyana and Emmett D. Brown, from John E. Parker and Clarence J. Perez. It was their intention to cut and sell timber, and a portable sawmill was erected using surplus military equipment along the western edge of Bayou Des Familles. Parker had purchased this land from the Citizen's Bank of Louisiana in 1936 (COB 109 f. 45; Goodwin et al. 1989: 35). Illegal small-scale logging and milling were on the rise during this period, when sawmill operators falsified the amounts of acreage to the tax assessor's office, and then proceeded to strip the land, producing poor quality lumber which nevertheless sold at lucrative prices. Located on the Brown's Sawmill site were several small frame utility sheds, a sawdust pile, and a pond. The pond was excavated by a military surplus bulldozer, and as a means to keep insurance costs down, a water pump was placed at the water's edge to more readily combat fires. No fires were reported at the mill, however. The sawmill operation was abandoned by the early 1950s (Goodwin et al. 1989: 35, 38-40). Figure 16 is an excerpt from the 1951 Bertrandville, LA quadrangle map showing the project area, and Figure 17 is an excerpt from a 1958 aerial photograph series of the Bayou des Familles area. Figures 18 and 19 are excerpts from the 1966 and 1992 Bertrandville, LA quadrangles showing the current project area.

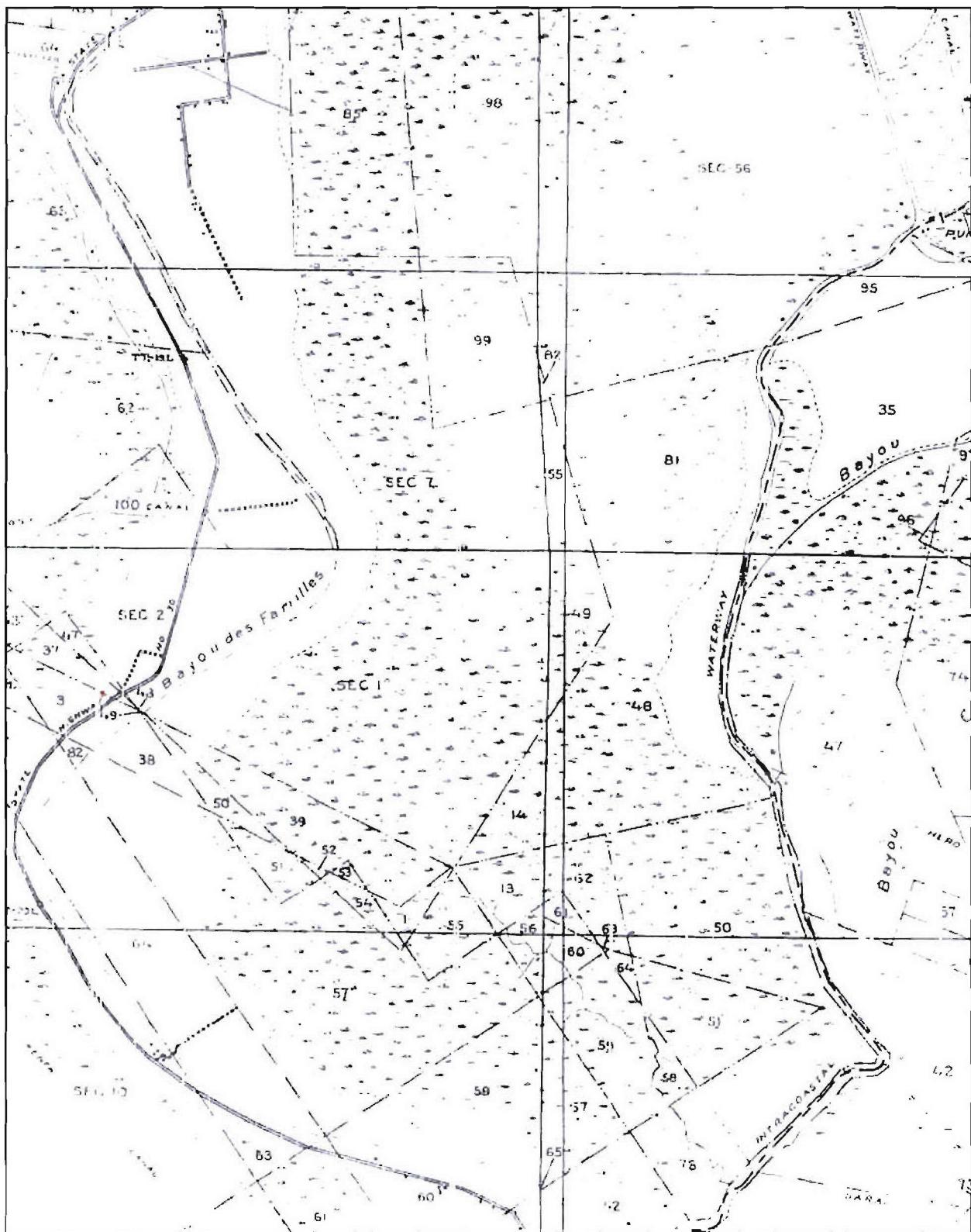


Figure 14. Excerpt from the New Orleans, LA 15' quadrangle map (1932) showing the vicinity of the current project area. The Ross Canal and the Woods Place Canal are shown.

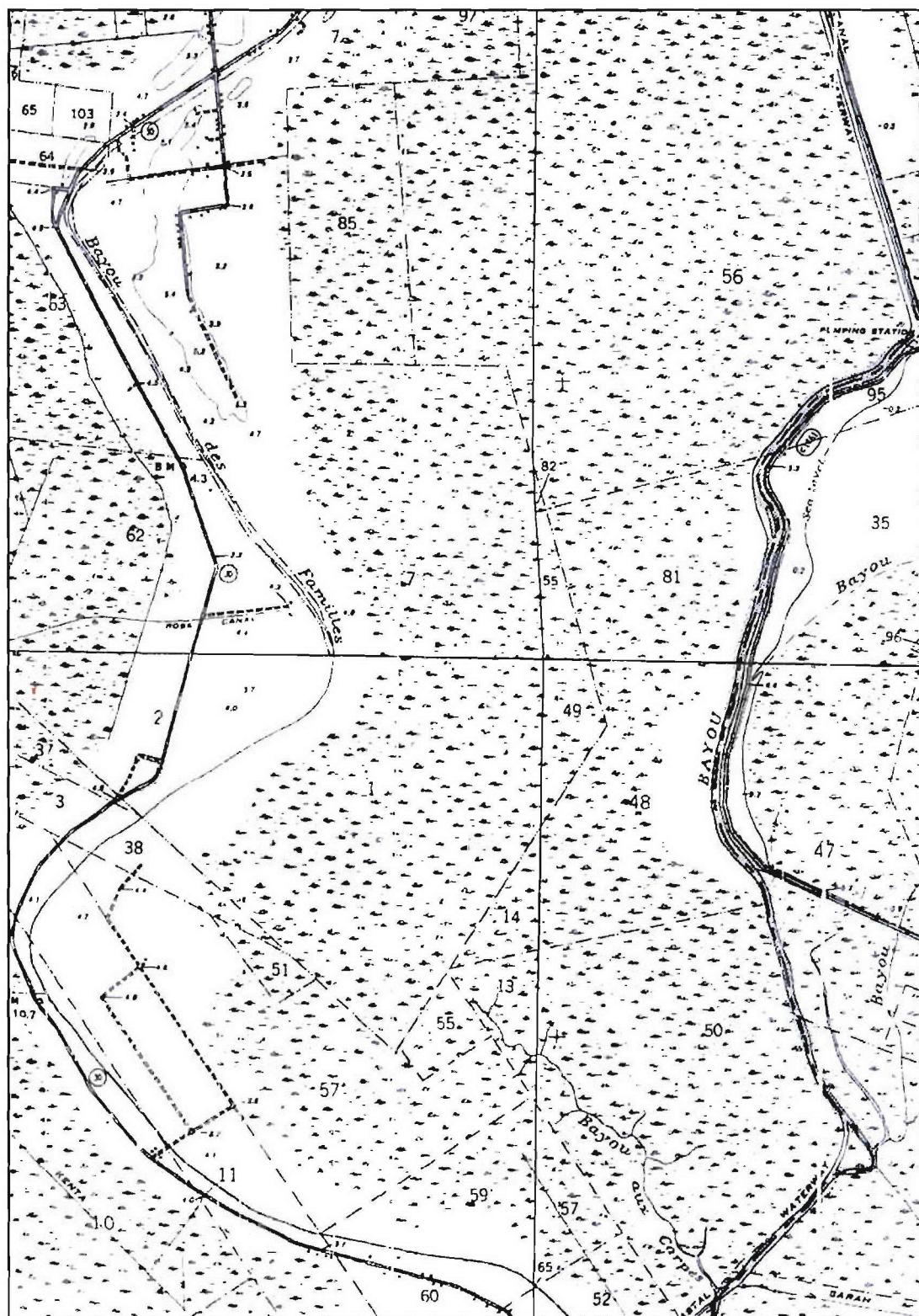


Figure 15. Excerpt from the Bertrandville, LA 7.5' quadrangle map (1938) showing the vicinity of the current project area.

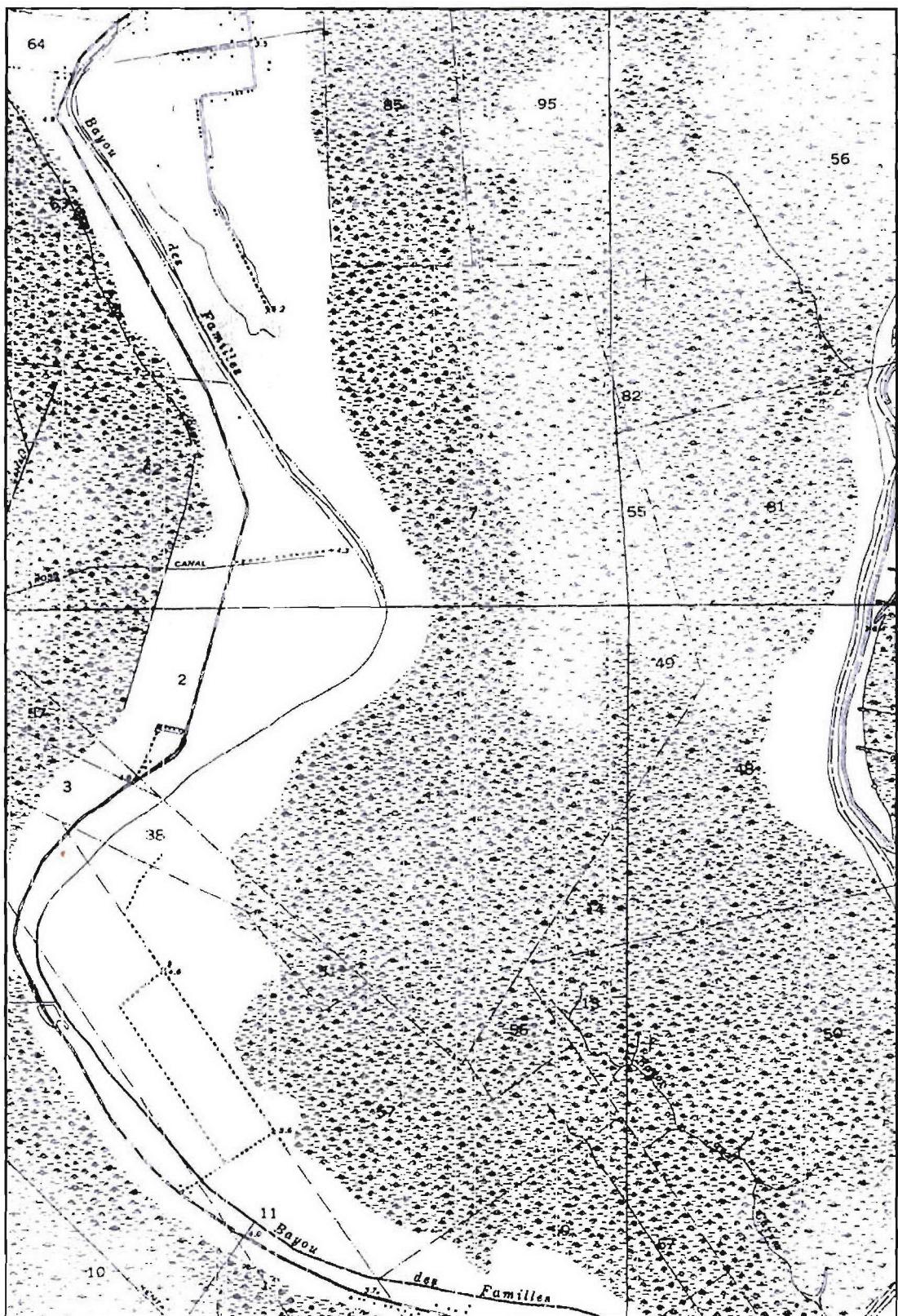


Figure 16. Excerpt from the Bertrandville, LA 7.5' quadrangle map (1951) showing the vicinity of the current project area.



Figure 17. Excerpt from the 1958 series aerial photograph (No. 5-58 171) including the current project area. The cane field system between Hwy 30 (now LA Hwy 45) and the Woods Place Canal had become overgrown by this date, but field drainage features are clearly visible extending from the former plantation complex area (near the bayou) west to the Woods Place Canal. The Ross Canal is visible as the dark line bisecting the cleared area between the highway and the Bayou (Engineering Files, NODCOE).

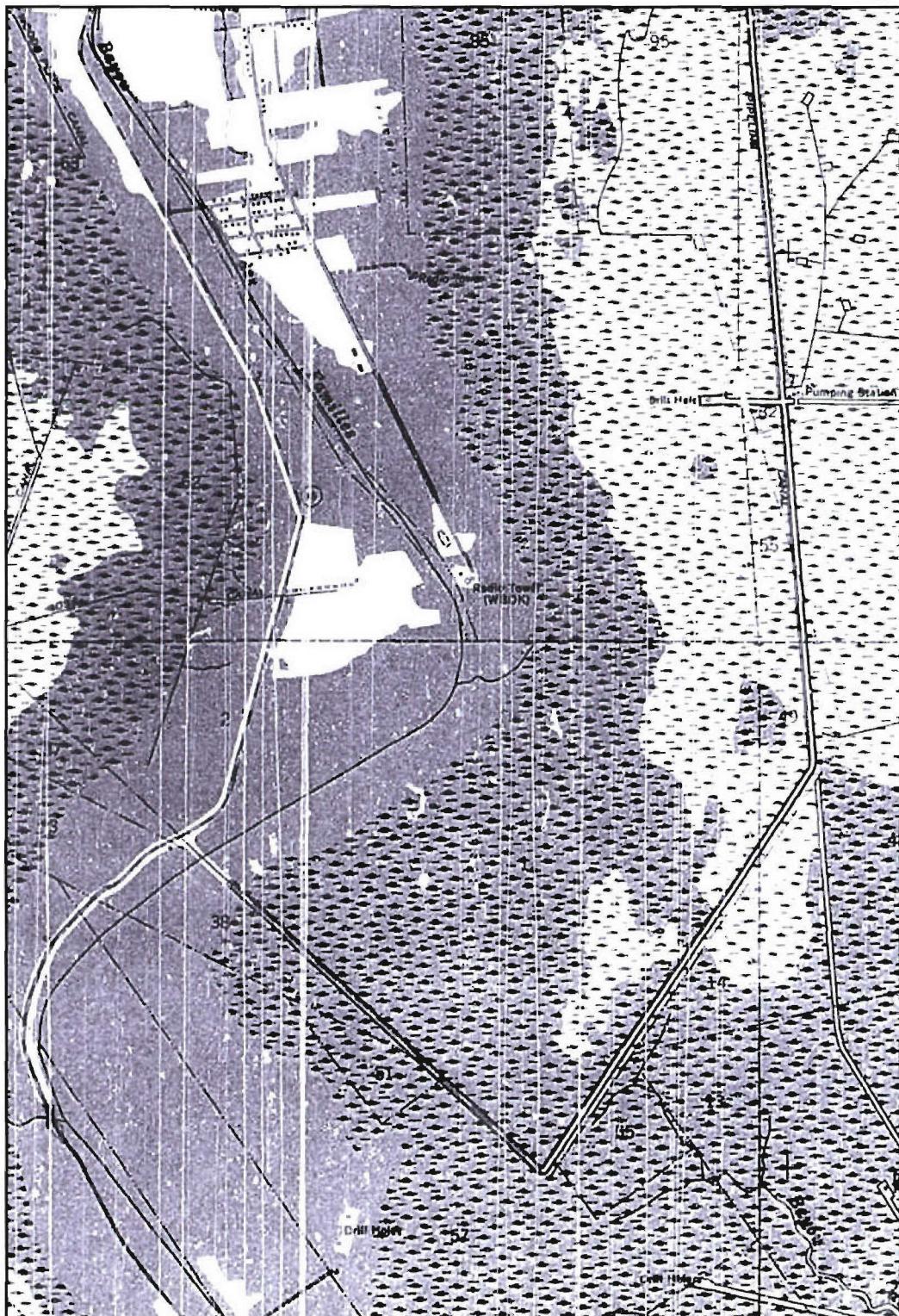


Figure 18. Excerpt from the Bertrandville, LA 7.5' quadrangle map (1966) indicating the vicinity of the current project area.

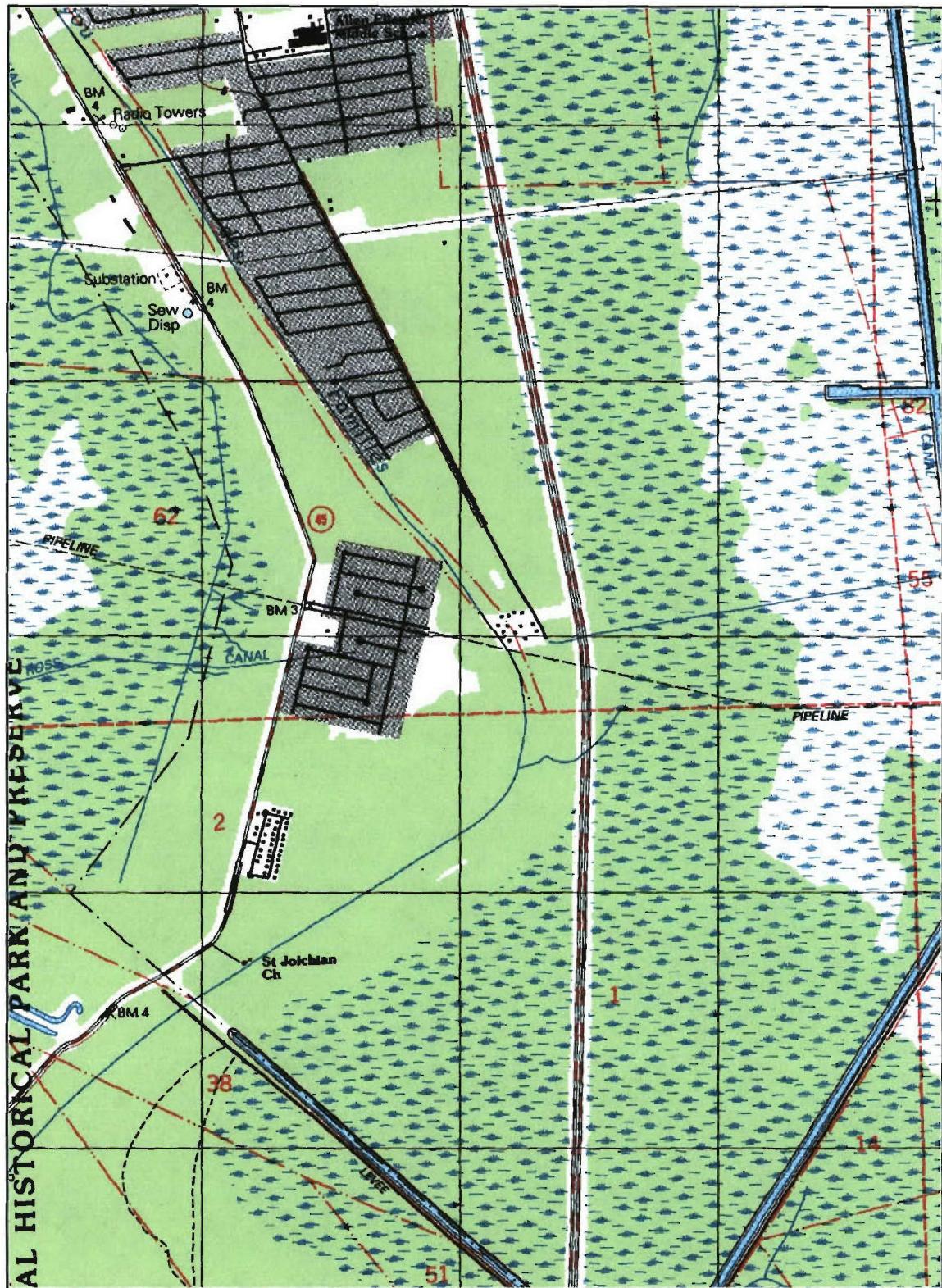


Figure 19. Excerpt from the Bertrandville, LA 7.5' quadrangle map (1992) indicating the vicinity of the current project area.

CHAPTER 5 PREVIOUS INVESTIGATIONS

This chapter summarizes previous investigations undertaken within the Historic Landscape, Highway 45 Borrow Pit project area vicinity. Professional archeological research did not commence in the Louisiana coastal zone, specifically the Barataria Basin, until the 1930s. Prior to that time, however, there were a number of instances where archeological sites were mentioned or recorded. These data are historically interesting because they provide a record of the locations and conditions of a number of sites that have since been altered, destroyed, or eroded. The destruction and alteration of Native American sites has not been limited to the twentieth century (Foster 1874; Swanson 1991:16-20; Figure 8). In 1874, J. W. Foster noted the presence of numerous archeological sites in the New Orleans vicinity, and specifically observed that "Along the banks of this bayou [Bayou Barataria] are vast shell accumulations, which for years... have been used for street grading and garden-walks in New Orleans. A constant trade in small sail-boats and barges is kept up, and this trade is fast exhausting these supplies" (1874:158). In addition to archeological surveys, individual sites located within and immediately adjacent to the project area are discussed.

Kniffen 1936

In 1936, F. B. Kniffen, a cultural geographer, undertook an archeological survey in the eastern coastal zone. This research was designed to assist in the dating of geological features (notably waterways and associated features) by examining Indian sites associated with each of them (Kniffen 1936). Kniffen visited and made collections from 36 archeological sites in the Mississippi River delta area, including sites along Barataria Bayou. He formulated two chronologically distinct ceramic "complexes". The earlier of these two complexes was called Bayou Cutler, after the site of the same name (16JE3), and the other Bayou Petre, named for the site of the same name in St. Bernard Parish (16SB11) (Kniffen 1936). Kniffen identified a number of ceramic traits that distinguished these two complexes, and called attention to the similarities and differences between the coastal ceramics and those identified by Ford in the Lower Valley (Kniffen 1936). The effect of Kniffen's work was to incorporate the archeology of the coastal zone into the broader picture of Southeastern archeology that was emerging at that time. Kniffen's work also suggested that the cultural ties of peoples living in the coastal zone were northward up the Mississippi Valley.

McIntire 1954 and 1958

Another cultural geographer, William McIntire, undertook a study of the coastal zone "to learn more about prehistoric man in coastal Louisiana, and to use his cultural remains as an aid in unraveling some of the geological history of the deltaic plain" (McIntire 1954:1). This research was significant in geographic scope and in the extent to which it provided the benchmark for subsequent refinements of the culture history of the entire coastal zone (McIntire 1954, 1958; Neuman 1984). Basing his culture historical framework on revisions of James A. Ford's previous work: Phillips, Ford, and Griffin (1951); Ford and Quimby (1945); and Ford and Willey (1940), McIntire aligned the coastal zone culture history with that promulgated for the Lower Mississippi Valley (1954, 1958). By the time McIntire's work was revised in 1958, a chronological framework had emerged which is still recognizable today. McIntire revised the Bayou Cutler and Bayou Petre complexes, which were respectively placed in the Coles Creek and Plaquemine periods. A coastal Troyville culture/period was recognized, along with Marksville remains. McIntire also noted the presence of moderate quantities of late prehistoric ceramics attributable in style or actual fabric to the Moundville [Pensacola] and Fort Walton cultures of the eastern Gulf Coast region (McIntire 1954, 1958).

McIntire's work also involved a great deal of archeological survey and some limited testing and soil coring. McIntire investigated a number of sites on Bayou Barataria, mostly south of the confluence of Bayous Barataria and Villars (Gagliano et al. 1979; McIntire 1958). Based on his analysis of the ceramics from the area, McIntire (1958:74) suggested that the lower course of Bayou Barataria had supported an important Troyville occupation. More recent archeological research in the lower Barataria region indicates that many of these Troyville sites may actually date to the Marksville period. McIntire's data also showed that many of the sites in the Barataria region supported extensive occupations through much of the prehistoric period.

New Orleans District, U.S. Army Corps of Engineers (NODCOE) 1975

The NODCOE prepared an Environmental Impact Statement (EIS) for the Bayou des Familles Development Corporation flood protection levee in Jefferson Parish. The flood protection levee was to be constructed in the south-central portion of Jefferson Parish, approximately 5 miles northwest of Crown Point (NODCOE 1975:i). The EIS addressed issues such as air, water, and land resources as required by the National Environmental Policy Act.

Weinstein and Burden 1976

Coastal Environments, Inc., undertook an archeological survey of "the cleared route of the Crown Point-Estelle Highway" (Weinstein and Burden 1976:3-1). The survey focused on areas that crossed the natural levees of Bayous des Familles and Barataria. No new sites were recorded as a result of the survey.

Beavers 1982a and 1982b

The research discussed in these reports was undertaken by the University of New Orleans (UNO) as part of the planning for Jean Lafitte National Historical Park and Preserve and represents the beginning of the intensive investigations of the Bayou des Familles channel. The UNO research program consisted of three parts: survey, initial testing at the Coquilles site, and more extensive excavation and mitigation in advance of construction at the Coquilles site (Beavers 1982a, 1982b). Survey was initially conducted in 1975-1976, and was followed by a series of excavations at the Coquilles site (specifically in the mound or mounds on the east side of Highway 45). Excavations were also undertaken at this time at the Boudreaux site (16JE53) near Crown Point (Beavers 1982b). Excavations of the non-mound area of the Coquilles site were conducted by the UNO research team and initially consisted of a three percent sample. This was later supplemented by additional excavations to bring the total area excavated to five percent (Beavers 1982a).

Beginning in the spring of 1981, a series of intensive surveys of the banks of Bayou des Familles were undertaken to locate sites in the park area (Beavers 1982b). Field procedures consisted of "close order pedestrian transects along the natural levee ridges" (Beavers 1982b: 72). The survey coverage was not specified in terms of total area or transect spacing. Survey was conducted parallel and perpendicular to the bayou channels, however, although how far the perpendicular transects were carried is uncertain (Beavers 1982b: 72).

The results of this phase of intensive research were that the Coquilles site was well sampled, and a series of radiocarbon dates were obtained. Excavations at Coquilles and the Boudreaux site suggested the presence of notable Marksville and "Troyville" period occupations in the area (Beavers 1982a, 1982b; Giardino 1984, n.d.). The Coquilles site was interpreted as a village community center located at the confluence of Bayous des Familles and Coquilles, with contemporary villages located up and down both bayous and also farther south (Beavers 1982a, 1982b). Surveys of the Bayou des Familles and Bayou Coquilles area recorded 57 sites, and eight of these were tested. Most of the sites were small and shallow; and many could not be ade-

quately dated even when excavated (Beavers 1982a, 1982b). Beavers noted that the settlement pattern was highly linear, and he associated this distribution with the circumscribed environment where settlement choice was constrained by the availability of high ground (1982b). Survey data from the Bayou des Familles channel area indicated that the occupation span was virtually unbroken from Marksville into the early historic period (Beavers 1982b; Swanson 1991). Several interesting gaps were indicated by these data, however. Most notably, there was a relative dearth of Coles Creek period sites. Marksville and "Troyville" period occupations were more common, and later Mississippi period habitations were also noted. Other than the occupation at the confluence of Bayous des Familles and Coquilles, however, no large sites were found. Sites were also only found along the front of the levee near or on the crest of the ridge. No prehistoric sites were recorded on the levee backslope.

Beavers et al. 1982

Gregory C. Rigamer & Associates contracted Richard C. Beavers to perform a cultural resource survey and assessment for the proposed West Bank Hurricane Protection Levee, Jefferson Parish, Louisiana. The proposed levee and its five alternate routes are bounded on the west by Lakes Cataouatche and Salvador, on the south by the property of the Jean Lafitte National Historical Park, Barataria Marsh Unit-Core Area, on the east by State Highway 45 and on the north by the West Bank Expressway and the town of Westwego (Beavers et al. 1982:9). No adverse impacts to cultural resources were found (Beavers et al. 1982:81).

Goodwin 1985

R. Christopher Goodwin and Associates, Inc., undertook a pedestrian survey with limited subsurface testing of a proposed trail system within the Barataria Unit of the Jean Lafitte National Historical Park. Landscape features noted during the survey included cane rows and field drainages within the boundaries of Christmas Plantation (Goodwin 1985:6).

Holmes 1986

The Southwest Region, National Park Service, produced this Historic Resource Study of the Barataria Unit of Jean Lafitte National Historic Park. It consists of an overview of the history of the Barataria Basin and an inventory of the historic resources within the Barataria unit. The National Register nomination for this area was prepared as a part of this study (Holmes 1986:3).

Kelley and Bryant 1986

In 1986, Coastal Environments, Inc., undertook a survey of the Estelle Tract, a 353 ha area located on the east bank of Bayou des Familles north of the Jean Lafitte National Historical Park and Preserve. This research consisted of literature review and selected sampling of the levee area by pedestrian survey parallel and perpendicular to the channel. Seven new sites were located, and several previously reported site localities were revisited. Results of this work showed that most of the sites in the Estelle Tract were located within 70 m of Bayou des Familles. Three transects placed perpendicular to the bayou failed to locate new sites (Kelley and Bryant 1986). One previously reported site, 16JE73, could not be relocated. This site, which was initially found during an examination of spoil deposits from excavations for the Lafitte-Larose highway, is the only example of a prehistoric occupation of the Bayou des Familles channel not very closely associated with the present channel of the bayou. Kelley and Bryant suggest that this site was probably associated with a small crevasse channel emanating from the bayou, which would explain both its location and the fact that it was evidently not a shell midden (Kelley and Bryant 1986:28).

Of the seven new sites (16JE149-16JE155) recorded during the survey, the average size was 10-15 m wide and 10-20 m long. The cultural deposits ranged from 7-35 cm thick (Kelley and Bryant 1986:28). None of these sites could be adequately dated, other than to note that their occupations surely dated to the Neo-Indian era. Baytown Plain pottery was found at each site, but was not sufficiently diagnostic to date these sites. One of the sites visited during this survey was considered to be the same site identified in the state archeological site files as 16JE62 (Kelley and Bryant 1986:31). According to Kelley and Bryant, 16JE62 consists of a *Rangia* scatter over an area roughly 10 x 15 m, with a midden of roughly 28 cm thick. No prehistoric artifacts were found at the site, but a nineteenth-century British wine bottle base was found on the surface (Kelley and Bryant 1986:31).

Speaker et al. 1986

The National Park Service, Southwest Region, contracted R. Christopher Goodwin and Associates to conduct an archeological assessment and literature review of the Barataria Unit of the Jean Lafitte National Historic Park. The Barataria Unit project area is located approximately ten miles south of New Orleans, in south central Jefferson Parish, Louisiana. It includes both the Core Area (8,600 acres) and the Park Protection Zone (11,400 acres) (Speaker et al. 1986:10). This assessment provided an overview of the natural and cultural environment and a synthesis of the results of previous investigations of the park (Speaker et al. 1986:1).

A total of eighty-two archeological sites had been previously located within the boundary of the Barataria Unit at the time the report was written. The Core Area had been surveyed extensively; most of the identified sites were located within its boundaries. In contrast, only a few sites had been located within the Park Protection Zone (Speaker et al. 1986:65). To maximize the research and interpretive potential of the area, a management plan was developed that includes four areas of consideration: research and interpretive potential of cultural resources, potential impacts to cultural resources, mitigation of adverse impacts, and the significance of the cultural resources (Speaker et al 1986:104/106).

Swanson 1988

Between 1985 and 1988, the Jefferson Historical Society and the Jean Lafitte National Historical Park undertook a cooperative historical study of a portion of the Jean Lafitte National Historic Park. The purpose of the study was to document historic land use, identify historic sites and features, and to detail the human alterations to the natural environment (Swanson 1988:4). Six sites dating from the Spanish Colonial period were found in the study area on the east side of Bayou des Familles. Surface artifacts included ceramics, gunflints, brick fragments, clumps of baked clay, square nails, glass, and sawn animal bones (Swanson 1988:121). The sites were later investigated by ESI (Yakubik et al. 1989).

Goodwin et al. 1989

In 1989, R. Christopher Goodwin and Associates, Inc., surveyed the route of the proposed West Bank Hurricane Protection Levee. This research consisted of intensive pedestrian survey and shovel testing of an approximately 138 ha parcel running initially perpendicular to Bayou des Familles and then turning north to follow the V-levee to the Estelle pumping station (Goodwin et al. 1989:Figure 1). The survey corridor on the east side of Highway 45 was 200 m wide and was covered by survey parties in linear transects spaced ca. 20 m apart and placed parallel to the axis of the V-levee. Shovel tests were placed every 50 m along the transects, and were offset from transect to transect. A total of 1382 shovel tests were excavated during the survey (Goodwin et al. 1989:37). Shovel tests were excavated to sterile subsoil, and all material was passed through 6.44 mm (0.25 in) mesh. During this survey two sites were located, a historic saw mill (16JE217) and a prehistoric *Rangia* shell scatter (16JE218).

Yakubik et al. 1989

The National Park Service, Southwest Region, contracted Earth Search, Inc., to verify the existence and investigate the six sites identified by Swanson (1998), as remains of a late-eighteenth-century Canary Islander settlement. Subsequent to field investigations, three additional potential sites were located (Yakubik et al. 1989:ii). Of the six sites located in the Barataria Unit of the Jean Lafitte National Historical Park, only one of the sites had been disturbed, while the others remained in excellent condition. Artifacts recovered included late-eighteenth-century French and Anglo-American ceramics, glass, architectural debris, gunflints and flint debitage, smoking pipes, and clothing hardware. Aboriginal ceramics were also recovered, indicating that the settlers were trading with the Native Americans. In addition, a brick feature and two domestic refuse middens were discovered (Yakubik et al. 1989:ii). It was recommended that all six sites (16JE197, 16JE198, 16JE199, 16JE214, 16JE215, and 16JE216) were eligible for nomination to the National Register of Historic Places (Yakubik et al. 1989:132).

Franks and Yakubik 1990

In 1988, Franks and Yakubik conducted a survey of a 26 ha tract adjacent to Bayou des Familles in the Barataria Unit of Jean Lafitte National Historical Park (Franks and Yakubik 1990). The survey by Franks and Yakubik resulted in the identification of eight new archeological sites along the banks of Bayou des Familles. One of these sites was a historic steam engine foundation associated with Christmas Plantation, but the other seven were prehistoric components. One-by-one m test excavations were placed at five sites located on the east bank of Bayou des Familles (16JE200, 16JE201, 16JE202, 16JE204, and 16JE206), and at two sites on the west bank (16JE163 and 16JE164) (Franks and Yakubik 1990:Tables 3-4). The bulk of the identified plain and decorated pottery from these sites dates to the later prehistoric periods. At 16JE163, a late Bayou Petre-like component was identified based on the presence of decorated pottery types Anna Incised, var. Anna, Coles Creek Incised, var. Hardy, L'Eau Noire Incised, var. Australia, and Maddox Engraved, var. *unspecified*, and unidentified zone punctate (probably Buras Incised). Associated plain pottery consists of Baytown Plain, var. *Jean Lafitte*, and Addis Plain, vars. *Addis* and *St. Catherine*. Giardino (in Franks and Yakubik 1990:92) argues for a very late, ca. eighteenth-century, date for this component, although this interpretation can be questioned. All the types listed for site 16JE163 are present in earlier Mississippi period precontact era components, and they were not recovered in association with contact period or later artifacts. Franks and Yakubik reiterate Beavers earlier consideration about the linearity of prehistoric (and historic) settlement on Bayou des Familles, and further note that there are essentially rank orders in the settlement size, such that size decreases away from the confluence of Bayous des Familles and Coquilles (the location of the Coquilles site). Similarly, site size decreases south of that confluence (Franks and Yakubik 1990:Figure 26).

Kidder 1995

In 1994, Earth Search, Inc., conducted an archeological data recovery program at the Bayou des Familles site (16JE218), Jefferson Parish. The site was an irregularly shaped shell midden covering 550-600 m². Following site mapping and excavation of 28 randomly placed units, a backhoe was utilized to expose the majority of the midden surface. Radiocarbon dates indicate that the site was occupied during the interval ca. A.D. 1300-1500. No structural features were uncovered at the site, although numerous hearth-like features were present. *Rangia* shells were the most abundant faunal remains, but deer, muskrat, opossum, rabbit, turtle, and fish were all represented. Floral remains included maize, cane, and unidentified seeds and wood fragments. Analyses of ceramics, faunal material, and paleoethnobotanical remains from the site suggest that 16JE218 was occupied for a short period of time, and that these occupations were probably seasonal in duration. The site is likely the end product of a series of repeated short-term visitations to a favored locality.

Sites Within One Mile of the Project Area

A total of 37 sites have been previously recorded within one mile of the current project area. Sites representing both prehistoric and historic activity are present in the area. These sites are summarized in Table 1. No previously recorded sites exist within the project area. Dates in the table were taken from the site forms.

Table 1. Previously Recorded Sites Within One Mile of the Project Area.

Site Number	Site Name	Site Description	Cultural Affiliation	NHRP Status	Recorded By
16JE62	Bouligny # 8	<i>Rangia</i> shell midden	Prehistoric unknown	Potentially eligible	RCGA ¹ 1984, Hinks 1989
16JE73	N/A	Small shell midden	Unknown	Not eligible	Prieto 1981, RCGA 1984
16JE74	N/A	Burial mound and midden	Troyville, Coles Creek, Mississippian	Listed	Loumiet 1975, DeMarcay and Greene 1981
16JE75	N/A	Shell midden and possible mound	Troyville, Coles Creek, Mississippian	Listed	Loumiet 1975, DeMarcay, Greene and Walker 1981
16JE76	N/A	Shell midden	Unknown	Listed	Loumiet 1975, DeMarcay, Greene and Walker 1981
16JE77	N/A	Shell midden	Troyville, Coles Creek	Listed	Loumiet 1975
16JE149	Bouligny # 1	<i>Rangia</i> midden	Unknown	Potentially eligible	CEI ² 1985
16JE150	Bouligny # 2	<i>Rangia</i> midden	Unknown	Potentially eligible	CEI 1985
16JE151	Bouligny # 3	<i>Rangia</i> midden	Unknown	Potentially eligible	CEI 1985
16JE152	Bouligny # 4	<i>Rangia</i> midden	Unknown	Potentially eligible	CEI 1985
16JE153	Bouligny # 5	<i>Rangia</i> midden	Unknown	Potentially eligible	CEI 1985
16JE154	Bouligny # 6	<i>Rangia</i> midden	Unknown	Potentially eligible	CEI 1985
16JE155	Bouligny # 7	<i>Rangia</i> midden	Unknown	Potentially eligible	CEI 1985
16JE160	N/A	2 shell ridges	Unknown	Unknown	DeMarcay, Greene, & Johnson 1981
16JE161	N/A	shell scatter	Unknown	Unknown	DeMarcay, Greene, & Johnson 1981

¹ R. Christopher Goodwin & Associates, Inc.

² Coastal Environments, Inc.

Table 1, Continued.

Site Number	Site Name	Site Description	Cultural Affiliation	NHRP Status	Recorded By
16JE162	N/A	Shell and earth midden	Unknown	Potentially eligible	DeMarcay, Greene, & Johnson 1981
16JE163	N/A	Shell and earth midden	Mississippian, Historic	Potentially eligible	DeMarcay, Greene, & Johnson 1981; Beavers 1982; Franks, Yankubik, & Giardino 1990
16JE164	N/A	Shell midden	Mississippian, Historic	Potentially eligible	DeMarcay, Greene, & Johnson 1981; Beavers 1982; Franks, Yankubik, & Giardino 1990
16JE169	N/A	Small shell midden	Unknown	Unknown	DeMarcay, Greene, & Johnson 1981
16JE170	N/A	Small shell scatter	Unknown	Unknown	DeMarcay, Greene, & Johnson 1981
16JE171	N/A	Small shell midden	Unknown	Potentially eligible	DeMarcay, Greene, & Johnson 1981
16JE172	N/A	Shell and earth midden	Marksville	Potentially eligible	DeMarcay, Greene, & Johnson 1981
16JE173	N/A	Shell scatter	Unknown	Unknown	DeMarcay, Greene, & Johnson 1981
16JE174	N/A	Shell scatter	Unknown	Unknown	DeMarcay, Greene, & Johnson 1981
16JE185	N/A	Shell scatter	Unknown	Potentially eligible	DeMarcay, Greene, Johnson, & Walker 1981
16JE187	N/A	Shell scatter	Unknown	Unknown	DeMarcay, Greene, Johnson, & Walker 1981

Table 1, Continued.

Site Number	Site Name	Site Description	Cultural Affiliation	NHRP Status	Recorded By
16JE188	N/A	Shell midden	Mississippian	Potentially eligible	DeMarcay, Greene, & Walker 1981
16JE193	N/A	Shell midden	Mississippian, possible Troyville component	Potentially eligible	DeMarcay, Greene, & Walker 1981
16JE197	Colonial Site 1	House mound	Spanish Colonial	Eligible	Franks and Yakubik 1988
16JE198	Colonial Site 4	House mound	Spanish Colonial	Eligible	Franks and Yakubik 1988
16JE199	Colonial Site 5	House mound, shell midden	Spanish Colonial, prehistoric	Eligible	Franks and Yakubik 1988
16JE214	Colonial Site 2	House mound and associated features	Spanish Colonial	Eligible	Yakubik 1989
16JE215	Colonial Site 3	House mound	Spanish Colonial	Eligible	Yakubik 1989
16JE217	Brown's Sawmill	Sawmill	1940s-1950s	Not eligible	RCGA 1989
16JE218	Bayou des Familles	Shell midden	Mississippian (ca. A.D. 1300 to 1500)	Not eligible	RCGA 1989, Smith 1996
16JE223	Camino Site	Shell midden	Prehistoric, Spanish colonial, historic	Not eligible	Yakubik 1995
16JE224	N/A	Shell midden	Mississippian	Not eligible	Kidder 1995

CHAPTER 6

FIELD INVESTIGATIONS

Background research indicates that the project area was once part of a nineteenth-century plantation that fronted on Bayou des Familles. Historic features located within and adjacent to the project area include the Ross Canal, an antebellum drainage ditch, and the Woods Place Canal. Additional cultural features that might exist in the project area include field drainage systems, such as ditches and levees, associated with sugarcane agriculture on the plantation.

Methodology

Fieldwork was undertaken to ground truth areas identified during background research that have high potential for extant cultural features associated with agriculture on the plantation. In addition to the reconnaissance of the project area, adjacent high potential areas, such as the intersection of Ross and Woods Place Canals, were also examined (Figure 1). Systematic archaeological survey was not undertaken and no areas were subjected to shovel test survey. Features that were observed during the reconnaissance were measured, photographed, and mapped using a hand-held GPS system. Additionally, a metal detector was used in an attempt to locate artifacts associated with the cultural features within and adjacent to the project area.

Results

Much of the project area is inundated due to summer rains. Standing water ranges from a few inches to more than two feet deep. From Ross Canal northward, the project areas to the east and west of Woods Place Canal are almost completely inundated (Figure 20). From Ross Canal southward, portions of the project area are inundated (Figure 21). Systematic transect survey at 30 m intervals was undertaken wherever possible.

Although only a small part of the Woods Place Canal occurs in the project area, the canal was considered a high potential area. Therefore, the berm on the west side of the canal was surveyed using the metal detector (Figure 22). Survey of this berm was halted at an impassable field ditch/small canal north of the Shell pipeline crossing in Section 62, T14S, R23E (Figure 23). This field ditch is similar to Ross Canal in size, depth, and orientation. No artifacts were recovered during the survey. No cultural features other than this ditch were observed in the survey area.

Also, the intersection of Ross and Woods Place Canals was considered a high potential area adjacent to the project area (Figures 24 and 25). The berms on either side of Ross Canal were surveyed to its intersection with Woods Place Canal (Figure 26). No artifacts were recovered during the survey. No additional cultural features were observed in the survey area.

Between the Shell pipeline crossing and Ross Canal, a total of four shallow field ditches were recorded (Figures 24 and 27). These ditches are approximately 30-75 m apart and roughly parallel Ross Canal. No artifacts or other cultural features were observed in the vicinity of these ditches.

Between Ross Canal and the southern terminus of the project area, a total of four shallow field ditches were recorded (Figures 24 and 28). These ditches are 30 m and 90 m apart and roughly parallel Ross Canal. No artifacts or other cultural features were observed in the vicinity of these ditches.



Figure 20. Photographs showing inundated areas to the east and west of Woods Place Canal north of Ross Canal.



Figure 21. Photograph of innundated APE south of Ross Canal.



Figure 22. Photograph of the berm on the west side of Woods Place Canal.



Figure 23. Photograph of the intersection of Woods Place Canal and an east-west field ditch north of the Shell pipeline right-of-way.

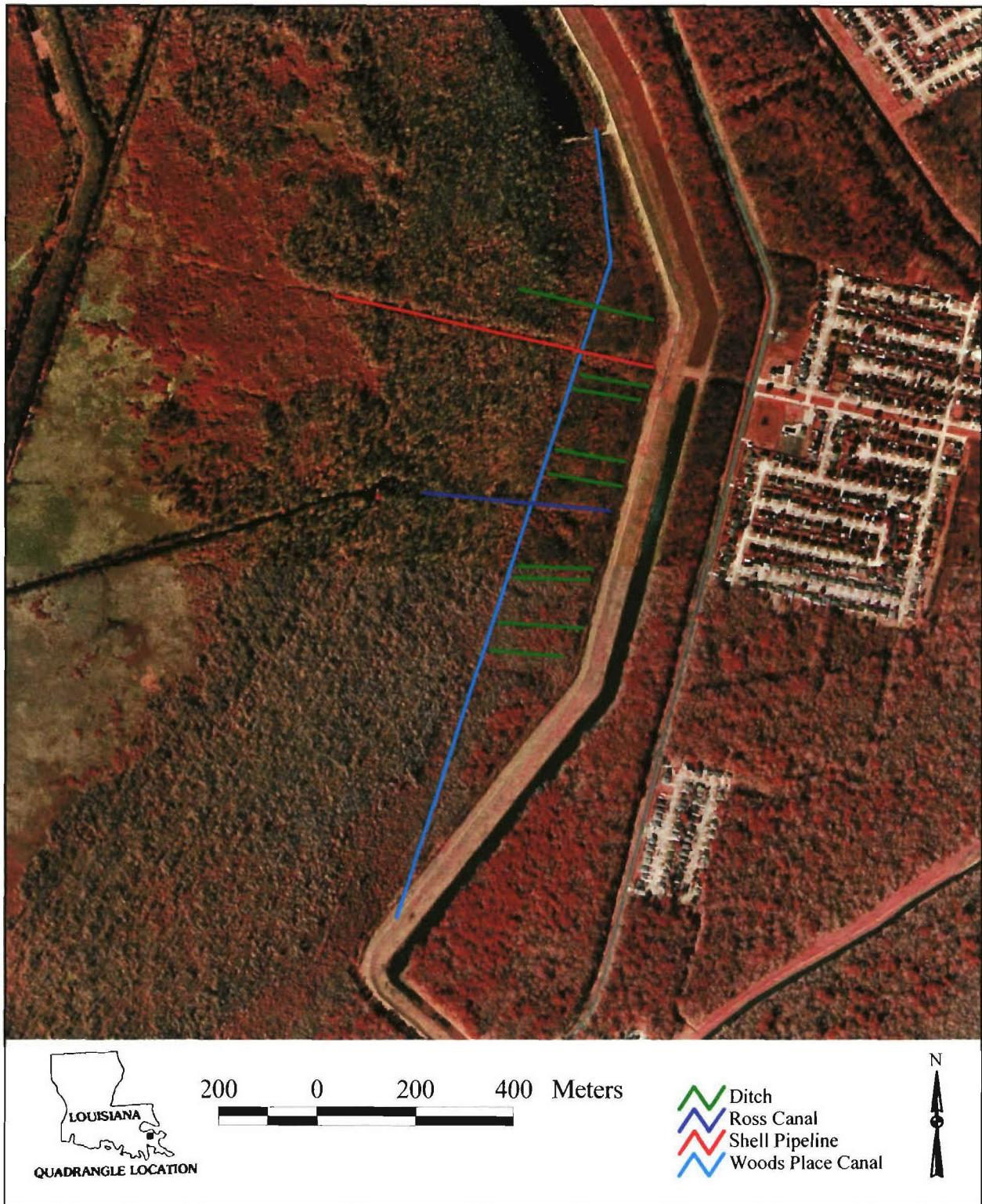


Figure 24. Excerpt from color infrared orthophotos of the NW and SW quadrants of the Bertrandville, LA 7.5' USGS quadrangle showing the field ditches identified and mapped during the investigations.



Figure 25. Photograph of the intersection of Woods Place and Ross canals.



Figure 26. Photograph of the berms along Ross Canal.



Figure 27. Photographs of the ditches north of Ross Canal.



Figure 28. Photographs of the ditches south of Ross Canal.

Although much of the project area and surrounding vicinity is inundated, a sample of the extant field drainages were observed during the current survey. During times of low water, it is likely that additional ditches similar to those observed could be recorded.

CHAPTER 7

INTERPRETATION AND EVALUATION OF CULTURAL FEATURES

Historic Landscape Features Within the Project Study Area

The landscape features within the project study area were almost certainly constructed during the era of sugarcane agriculture on the tract, that is, from ca. 1830 to ca. 1900. It is highly unlikely that they are associated with land use prior to the antebellum period.

There is no credible documentary evidence of agricultural exploitation of land in this immediate locality of the project area by Massy, Boudousquié, Guerbois, or Dauterive during the first French colonial period (1682-1763), or, for that matter, any other successive colonial occupant. Massy was the only French colonial occupant to undertake any significant agriculture in the Barataria area, and his fields certainly did not extend as far north as the current project area. Besides which, areas cleared for agriculture by Massy would not have remained clear in the period between abandonment of crop-growing and the arrival of the Canary Islanders during the Spanish administration of the Louisiana colony (1763-1802).

The Canary Islanders settled along the natural levee of Bayou des Familles for a distance of about seven miles. The Spanish administration prepared sites for Canary Islander settlement by surveying parcels and building small rudimentary houses. There is no evidence that during the few months between the selection of Bayou des Familles as the location of a *población* and the arrival of the settlers on their tracts, any extensive clearing was undertaken, beyond that required to obtain building materials on-site (Yakubik et al. 1996:103-111). If the Canary Islander houses were built with green wood cut on site and not with seasoned lumber (two or more years old) brought to the site, the houses would very soon have begun to deteriorate due to shrinkage of the lumber.

Despite undocumented assertions in some secondary sources that the Canary Islanders constructed wide-ranging drainage features and other improvements on their tracts, it is highly improbable that they did so and even less likely that any such features are observable in the present. A brief discussion of objections to such an interpretation is presented here.

In the first place, the natural levee of Bayou des Familles is narrow, varying between approximately one and two miles in total width. Even with twentieth-century drainage construction equipment and pumps, no one has attempted to drain and farm the area below what was the five foot elevation line (as in Figure 13), which effectively marks the historic boundary of the back swamp in this location. Lands that could be drained and farmed were circumscribed in the eighteenth century because of the lack of effective levees on the Mississippi River, of which Bayou Barataria is a distributary. Even natural levee crests were periodically inundated, and backswamps were usually flooded annually or permanently. Drainage and levee-building work remained very labor-intensive, and therefore expensive, through the post-Civil War era. By the end of the nineteenth century, drainage pumps, steam shovels, and draglines made it practical to bring back lands into cultivation, since deeper drainage features and larger levees could be constructed more quickly and with less expense.

The small *Isleño* family groups at Barataria were largely without draft animals and slaves, the motive power and labor force that would be required to perform any large-scale improvements in the short time frame during which the Canary Islanders actually occupied most of the Barataria tracts. It is highly unlikely that significant drainage work would have been undertaken on any land until the natural vegetation had been removed, and it would have been extremely difficult, if not virtually impossible, for the *Isleño* family head to single-handedly clear virgin cover from large areas of natural levee. Albeit removing decades-old second-growth

vegetation would be a less monumental task than clearing virgin woodland, but the amount of strenuous labor required to bring land into cultivation with hand tools is easily underestimated by the modern observer. An average rate of land clearance in the historic period is difficult to calculate, since the thoroughness of clearing, and therefore length of time required, had much to do with the intended use of the land by the pioneer. How fast land could be cleared also depended on the density and size of trees on the site and other environmental factors, the strength and skill of the laborer or laborers, the methods of clearing and available tools, whether the pioneer had to simultaneously build a cabin, furniture, road or levee, fencing, etc. Any figure for rate of forest clearance is very general, but a typical estimate is that about three to four acres of virgin hardwood forest could be cleared per man per year, if draft animals were available. However, removal of stumps could take from one to ten years after initial clearing, depending on the species of trees present and the available removal methods. The rate of clearing per man was increased by cooperative labor, and greatly slowed without draft animals (c.f. Marshall 1845:16-22; Ayres and Scoates 1928:233-273; Stilgoe 1982:181; Williams 1989:60-67).

The land-clearing efficiency of the *Isleños* was probably relatively low for a period of time since they had few tools, were totally unfamiliar with Louisiana environmental conditions, and undoubtedly suffered during acclimatization. Since the Canary Islanders lacked draft animals when they settled at Barataria, all clearing, grubbing of stumps, and soil preparation for crops would have had to rely on human brawn until such time as trained adult oxen could be obtained or steers could grow to working age, which took about three years (Van Wagenen 1953). All drainage work and levee-building would have been performed with shovels with wheelbarrows or baskets to carry soil. Even cooperative labor by multiple family groups could not realistically have cleared large areas for cultivation, built fences, dug drainage features, repaired the effects of flooding, etc., in the period of six years before the *Población de Barataria* was virtually abandoned by the Canary Islanders. Seventy-three *Isleño* families (totaling about 325 persons) settled at Barataria in 1779, and 16 of these families left the same year; 57 families (totaling 252 persons) remained in 1782, which two years later had shrunk from migration and mortality to a total of about 100 persons; and in 1788, nine years after the Canary Islanders' arrival, only about 40 persons resided in Barataria. Taking for estimation purposes a hypothetical population of 150 men, adolescent boys, and anyone else available for land clearing, a labor force of this size *under good conditions and with draft animals* could clear perhaps 600 acres per year, or 3000 acres in five years. The total areal extent of the natural levee within the territory of the *Población de Barataria* (as extrapolated from the *Plano de las Concessiones...*, ca. 1779, in Yakubik et al. 1996:108, and data in Matthews 1983) can be estimated at very approximately 6700 acres. Thus, a labor force of 150 persons could clear the entire natural levee of the *Población* area along Bayou des Familles over six years if *each* person cleared an average of more than seven acres per year. In the context of Barataria, given both the environmental conditions and the small number of persons actually in the *Isleño* population, this rate of land clearance is a virtual impossibility. Even under the very best conditions, and if *all* of the *Isleños* had remained at Barataria, it would have been a superhuman feat for them to clear most of the natural levee area over a period of ten years.

Only about 60 adult males resided at Barataria in 1782, and by 1784, five years after their arrival, only about half of these adult males remained in the Barataria settlement. If each *Isleño* family (based on an overestimate of 57 families from 1779 to 1783, and 22 families in 1784) cleared three acres per year for six years, less than 1000 acres (or about fifteen percent) of the natural levee would have been cleared between 1779 and 1785. As low as this conjectural number of cleared acreage is, it may be more credible than higher numbers and could reflect a realistic projection of their achievements given the actual state of their affairs.

Furthermore, when the *Isleño* families were unable to subsist on the produce of their own agriculture, it is unrealistic to think that under any circumstances they would have tried to clear and drain backswamp lands when they did not have the time and labor force required to clear

even the small Bayou des Familles natural levee. It is equally unrealistic to suppose that the *Isleños* constructed elaborate drainage systems, visible in the present, reaching into the backswamp. No one tried to drain backswamp lands during the period when large slave work forces were present in the region, and drainage efforts extending into backswamp were only attempted when steam-powered excavation equipment was available.

The major observable landscape features within the current project study area are the Ross Canal and the Woods Place Canal. The Ross Canal transects the project area in an east-west alignment. The Ross Canal is not shown on any nineteenth-century map, but it was probably constructed when commercial agriculture was first established on the tract. It may have originally served as the "main ditch" of the Deléry and Villars tract fronting on Bayou des Familles. By the mid-1840s, there were about 65 slaves on the tract, indicating that cane-growing had likely been established on the tract by that time. However, the three maps of the area made in 1842 (Figures 6, 7, and 8) show "Boisclair" at the bayou frontage of the Deléry and Villars tract. The Williams map (Figure 7) even shows plantation buildings near the bayou in Section 62. However, none of the 1842 maps show the Ross Canal, or for that matter, the Delery Canal further west. The Barataria plantation of Deléry and Villars had some 650 of its total of 2000 superficial arpents in cultivation by the time they sold the property in 1847. It is also possible that a central, large lateral field ditch present in the 1840s was enlarged or extended during the ownership of the former Deléry and Villars tract by J.W. Ross, who thereby gave his name to the larger feature, dignified with the title of "canal." Ross obtained an interest in the tract in 1848, and his widow sold the plantation in 1852, so the Ross Canal was almost certainly constructed by the latter date. The cane field drainage features on both sides of the Ross Canal would have fed water into the canal to be conveyed by gravity into the backswamp. The Ross Canal remained the principal drainage feature of the tract during the ownership of the former Ross tract by J.U. Payne during the period 1857-1856, and during J.H. Carter's ownership in the period 1868-1874. After the mid-1870s, significant cane cultivation seems to have stopped on the Carter Plantation. The McCleran map of 1884 (Figure 12) shows the location of the plantation complex but not all of the buildings present on the tract as indicated in the 1885 conveyance of the tract to H. Mehnert, and McCleran also does not show the Ross Canal. The absence of the canal on the McCleran map probably suggests that the Ross Canal in this period only played a drainage function and was not a significant transportation route of any kind. Similarly, the Ross Canal does not appear on the 1891 USGS topographical map of the region (Figure 13), although the canal was undoubtedly present at that time. The 1932, 1938, and 1951 quadrangle maps (Figures 14, 15, and 16, respectively) suggest that the main plantation road was located parallel to and immediately north of the Ross Canal. The historic cane field drainage features are obvious in the 1958 aerial photographs (the earliest available, Figure 17) on both sides of Hwy 30 (now LA Hwy 45). The 1966 quadrangle map (Figure 18) indicates little change in the vicinity of the current project area since 1951.

The Woods Place Canal runs approximately north/south, crossing the upper or northern portion of the project area and then running roughly parallel to the project area, some distance west of the western boundary of the project area. The route of the Woods Place Canal as shown on the current USGS quadrangle (1992) is not the original route, as discussed below. The construction date of the Woods Place Canal in this location is not known. There very likely would have been a backline ditch at the rear of the cane fields in this vicinity from the time when cane growing was established on the tract, probably by some point during the first half of the 1840s. The Woods Place Canal (or its forerunner) is not shown on any of the 1842 maps (Figures 6, 7, and 8). The backline ditch of the Ross, Payne, and Carter plantations may not have been connected with the antebellum back ditch of Millaudon's Pecan Grove Plantation until the post-Civil War period. During the ownership of the former Pecan Grove by a Mr. Woods in 1881-1886, the Pecan Grove backline ditch may have connected with backline ditches as far south as the Ross Canal, and then renamed the "Woods Place Canal" (Holmes 1986:891; Bouchereau 1868-1917). Neither the 1884 McCleran map (Figure 12) nor the 1891 USGS topographical map (Figure 13)

show the Woods Place Canal. The 1932, 1938, and 1951 USGS quadrangle maps (Figures 14, 15, and 16) show the Woods Place Canal. The 1966 quadrangle (Figure 18) suggests that by that date, the Woods Place Canal was filled or otherwise truncated north of the current project area in T14S R23E:63, but between 1979 and 1992, the Canal flow may have cut a natural channel in the southern half of Section 63, as shown on the contemporary Bertrandville, LA quad map (1992) (Figure 19).

The landscape features discernable in the current project area represent the remains of surface drainage elements of the cane field drainage system, and prior to deterioration, would likely have been consistent with those southward in Section 2 that were documented in 1989 (Goodwin et al. 1989:38-40), and which were also part of the Ross Plantation drainage system. The Ross Canal, Woods Place Canal, and any smaller linear features are clearly associated with historic sugarcane agriculture on the tract during the period ca. 1840-1900; they are entirely consistent with practices of cane field surface and sub-surface drainage, developed and standardized during the pre-tractor era of cane cultivation (1820-1930) (Figures 29 and 30), and continued, except for the dimensions of such features, in Louisiana's sugarcane agriculture to the present. Cane field drainage is discussed in detail below.

Louisiana cane fields on alluvial tracts were consistent rectangles because of the need for extensive ditching to lower groundwater levels, carry away precipitation, and also for other requirements of cultivating cane and transporting it during harvest. The shorter dimensions or widths of the field units were parallel to the principal stream, and the longer dimension perpendicular to the stream. The cane rows also ran perpendicular to the stream. Leading ditches (parallel with the stream) and cross ditches (perpendicular to the stream) divided the fields into blocks or sections, known in Louisiana as "cuts." The cross ditches were dug with no fall, so that water could flow either direction, depending on the height of the water in the leading ditches. Each field block or section had a number of intermittently spaced drains or ditches that ran at right angles to the cane rows. Lateral or "panel" ditches ran parallel with the cane rows, and the cane rows were crossed by quarter drains, shallow shovel drains that carried the run-off from the furrows to the panel or lateral ditches. The size of each field, surrounded by ditches, has varied significantly over time, and have become much larger with increasing mechanization. In the post-Civil War period (probably reflecting late-antebellum practice) it was usual to dig quarter drains every 120 feet (40 yards) if the "leading" ditches were 480 feet (160 yards) apart, and every 210 feet (70 yards) if the leading ditches were 840 feet (280 yards) apart. However, there was variety in the distance between quarter drains depending upon the elevation of the locality—the lower the elevation, the more closely spaced were the drainage features. Cross ditches were from 800 feet (267 yards) to 1200 feet (400 yards) apart, and were usually six feet to 10 feet wide and two to four feet deep. The panel or lateral ditches ran perpendicular to the leading and cross ditches and were placed about 90 feet (30 yards) to 120 feet (40 yards) apart. These panel ditches were two to six feet wide at the top and one and one-half to three feet wide at the bottom. During the nineteenth century, the array of drainage ditches usually occupied from 10 to 20 percent of the cultivable field area.

In the first decades of sugarcane growing in Louisiana, sugarcane rows varied from two and one half to four feet apart. After the 1820s, when purple and ribbon canes were introduced, rows increased in width to six to eight feet. By ca. 1890, six-foot row spacing became standard. Meanwhile, as drainage systems became more extensive and plowing technology improved, surface drainage was largely achieved by raising the cane plants on ridges, ranging from nine to an extreme of 25 inches above the area between the rows, called the middles or water furrow. This ridging was achieved by plowing up the middles and depositing the soil in the cane rows. Typically, rows closer to backswamps had higher ridges than rows at the front of the tract, since the groundwater was closer to the surface in areas of lower elevation. Two years of cane were grown from each planting of seed cane. After harvesting a field unit of cane for its second year, and prior to reseeding, the furrows and quarter drains would be "flushed up" or plowed level to

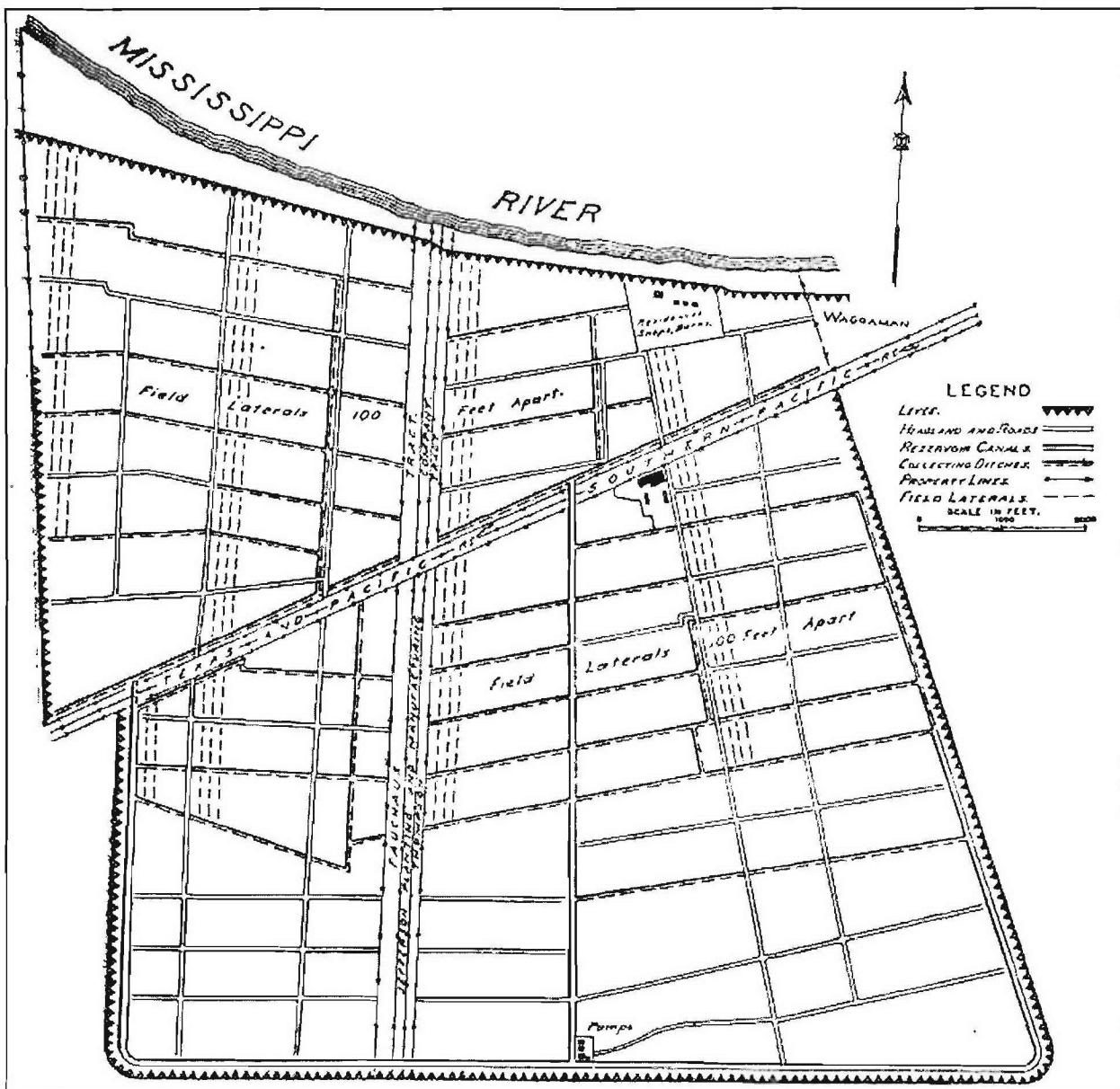


Figure 29. Map of Willswood Plantation, Waggaman, Jefferson Parish, LA, ca. 1909. This is a typical cane field drainage system utilizing pumps (from Morehouse 1910).

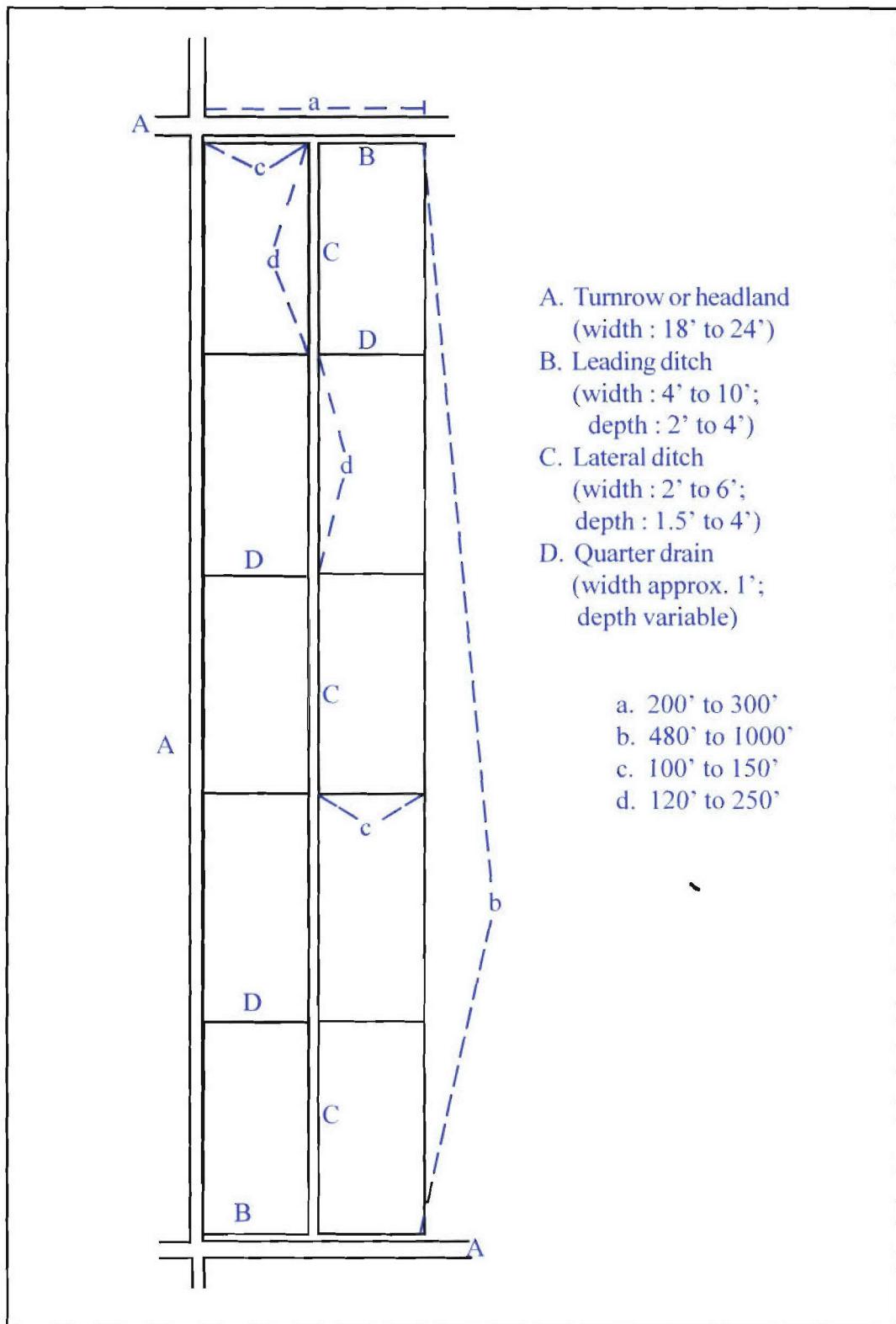


Figure 30. Schematic plan of two ideal cane field units, 1850-1950. Shaded area is one unit, consisting of 18 to 25 cane rows, six feet apart, encompassing one and one-half to three acres. Ten to 15 units made up a section or "cut" [not to scale](Earth Search, Inc.).

break up the roots of the previous crop and inhibit weed growth. The field was then “made mellow” by a lighter plow to prepare the field for “bedding up,” or raising the cane rows, or plowing for any other crop that might be raised in rotation with cane. Thus, the surface drainage features of cane fields were usually destroyed every two years.

Once the drains and ditches had been excavated, they were constantly re-filling with sediment deposited by runoff. It was crucial to keep drainage features clean throughout the growing season. Thus, the proper function of any drainage feature associated with agricultural efforts would require periodic cleaning, with inevitable evolutionary alteration of feature profile or section, depth, and other dimensions. On a 1000-acre plantation during the hand-tool period, with maybe 40 percent of its total area in cane fields, at least two men were kept busy cleaning (or “plugging”) ditches year-round except for the harvest season (Morehouse 1910:432; Maier 1952:4-6; Maygarden 2001).

Mechanical advances made deeper ditches easier to construct, improving subsoil drainage and allowing less of the total available area to be occupied by drainage features. The size of cane fields consequently increased. From about 1910 to ca. 1950, a single field unit increased from an average of about 16 rows (six feet apart) to 18 to 25 rows (six feet apart), or a total width of from 100 feet (33 yards) to a range of 108 to 150 feet (36 yards to 50 yards). Panel ditches around every unit were replaced with a lateral ditch on only one side, running parallel with the cane rows. Lateral ditches became commonly known as “two-foot ditches” by virtue of their average width at the bottom. The average width of the laterals at the top was three to four feet, and their depth two to four feet. Each field unit had three or four shallow quarter drains that ran at right angles to the cane rows, and were spaced from about 170 feet to 250 feet (51 yards to 83 yards) apart. By the tractor era (after ca. 1930), the cane rows were 500 feet to 1000 feet (167 yards to 333 yards) long, forming a unit of one-half to three acres. The units were arranged side-by-side so as to allow the lateral ditch to drain excess water from two field units, one on either side. The laterals emptied into a “collecting” ditch, corresponding to the older leading and cross ditches. Collecting ditches were typically from four feet to 10 feet in width and four to five feet deep, and placed at approximate intervals of 2500 feet (833 yards). These collecting ditches flowed directly into secondary bayous if possible, and if not, into specially excavated canals. Ten or 15 field units formed a section or “cut.” Each cut was bounded by a headland or turnrow on each of the four sides, each headland measuring 18 feet to 24 feet (six to eight yards) wide. Groups of cuts formed “fields” of cane, and fields of cane comprised “plantations” (Morehouse 1910:436-437; Maier 1952:4-6; Rehder 1971:231-235; Maygarden 2001).

As suggested above, the dimensions and spacing of the observable features in the project area are consistent with an interpretation of their original construction in the pre-tractor period of cane growing and their falling out of cultivation by the 1880s. It is also probable that the Ross Canal and Woods Place Canal were dragged or cleaned in one or more episodes subsequent to the abandonment of cane growing on the tract. Since no trees more than ca. 50 years of age are growing from the small-scale berms adjacent to the canals, which likely resulted from deposition of spoil during one or more twentieth-century drag-line dredgings, the canals may have had maintenance dredging since the conclusion of the historic period. In fact, only a very few isolated trees within the entire study area are over ca. 50 years of age, suggesting ca. 1950 as a last date of clear-cutting of marketable timber. No linear or other regular pattern of tree location can be observed. Certainly no historic boundary demarcations, utilizing trees as markers, could be observed in the present vegetation, either in age of trees, varieties or species of trees, or arrangement of trees.

Evaluating the Project Area Landscape Using NRHP Criteria

The National Park Service’s *Guidelines for Evaluating and Documenting Rural Historic Landscapes* (McClelland et al. 1995) defines a “rural historic landscape” as “a geographical area

that historically has been used by people, or shaped or modified by human activity, occupancy, or intervention, and that possesses a significant concentration, linkage, or continuity of areas of land use, vegetation, buildings and structures, roads and waterways, and natural features" (McClelland et al. 1995). McClelland et al. (1995) identify eleven characteristics that may be used "for reading a rural landscape and for understanding the natural and cultural forces that have shaped it" (McClelland et al. 1995). These characteristics are used in developing historic context, identifying and evaluating the significant properties of a rural area, and determining the eligibility of a particular landscape under NRHP criteria, including assessments of significance, integrity, and boundaries of specific properties. The presence or absence of any (or even all) of these eleven characteristics does not in and of itself determine the significance, integrity, or boundaries of a specific landscape independent of an application of the National Register criteria for evaluation.

Of the eleven characteristics identified in McClelland et al. (1995) for classification of rural landscapes, four "processes that have been instrumental in shaping the land" of the current project area may be identified and related to their historic context. The "tangible evidence of the activities and habits of the people who occupied, developed, used, and shaped the land to serve human needs" are, in this case, features obviously associated with historic sugarcane agriculture, organized on the basis of drainage requirements of the bayou's low natural levee. Yet more specifically, the features reflect standardized methods developed by the (nineteenth-century) culture of Louisiana cane-growing for dealing with the levee backslope-backswamp margin, constituting a micro-environment of individual cane plantations, within the wider natural environment of the alluvial cane-growing region.

Of the possible "physical components" of a rural landscape identified by McClelland et al. (1995), the current project study area displays only some of them as cultural features. Components present include clusters of drainage features as boundary demarcations (specifically of field sections); and small scale-elements, such as possible quarter-drain depressions and low berms resulting from ditch- and canal-cleaning episodes. Notably, components not present include vegetation related to land use. The presence or absence of individual characteristics of rural landscapes is summarized in Table 2.

It must be reiterated that the presence or absence of any (or all) of these eleven characteristics *does not* in and of itself determine the significance, integrity, or boundaries of a specific landscape independent of an application of the National Register criteria for evaluation. An evaluation of National Register eligibility requires a definition of significance of the property, assessment of its historic integrity, and selection of boundaries.

Potential Period of Historic Significance

The fact that a property reflects human activity during the historic period does not mean that a period of historic significance can be defined for the property. According to National Register guidance, "period of significance usually begins with the date when *significant* activities or events began giving the property its historic significance" (*National Register Bulletin* No. 16A 1991:42), and McClelland et al. add "the period of significance begins with the date of the earliest land use or activity that has *importance* and is reflected by historic characteristics *tangible today*" (McClelland et al. 1995, emphasis added). The burden of reasonable demonstration and interpretation of historic context lies upon those defining a potential period of historic significance for a historic property.

Table 2. The Presence or Absence of Individual Characteristics of Rural Landscapes.

Type Of Rural Landscape Characteristic	Characteristic Of Rural Landscape	Presence Or Absence	Description Of Characteristic
Process	Land Uses And Activities	Present	Agriculture
Process	Patterns Of Spatial Organization	Present	Drainage
Process	Response To The Natural Environment	Present	Natural Levee Backslope
Process	Cultural Traditions	Present	Louisiana Commercial Sugarcane Agriculture
Component	Circulation Networks	Present [?]	Canals Possibly Used In Logging
Component	Boundary Demarcations	Present	Field Boundaries
Component	<i>Vegetation Related To Land Use</i>	<i>Absent</i>	
Component	<i>Buildings, Structures, And Objects</i>	<i>Absent</i>	
Component	Clusters	Present	Partial Ditch System
Component	<i>Archeological Sites</i>	<i>Absent</i>	
Component	Small-Scale Elements	Present	Cane Field Ditches

The periods of potential historic significance of the current project area are the antebellum period (1803-1860) and late-nineteenth century (1861-1900), and the potential area of significance is agriculture. The period of potential historic significance is not deemed to include the colonial era or the twentieth century. For reasons detailed above, livestock raising and logging were likely the only potential impacts within the project area during the colonial period. Livestock raising as a variety of agriculture is identified in National Register guidance (*National Register Bulletin* No. 16A 1991:40) as an area of significance relating to an important theme in American History. However, no documentary research or field survey data suggest that *tangible* evidence of historic characteristics of livestock raising (e.g. barns, corrals, drover's trails, etc.) is present in the project study area. It would likely be impossible to demonstrate any evidence that cattle grazed in this area in the historic past, short of finding faunal remains of an appropriate age that could be interpreted as artifacts of an animal deceased while grazing, rather than as evidence of a backwoods barbecue. A case could be made that logging as an exploitation of natural resources (perhaps with petroleum extraction, coal mining, etc.) could be an area of significance under the historic themes of economics and social history. However, no *tangible* evidence of an historically *important* logging episode can be derived from the project area today, since during the antebellum period the tract was clear-cut for agriculture and all stumps removed, eliminating any evidence of earlier logging episodes. Current conditions also suggest that the tract was clear-cut subsequent to its agricultural use, since almost no trees present today date to the historic period. In addition, it cannot be demonstrated on the basis of any documentation or archeological data that the historic features tangible today (*i.e.*, the historic drainage features) date to the colonial era, rather than to the nineteenth century, when the property is documented to have been a productive sugar plantation. It is possible that the major drainage features transecting the project area (*i.e.*, the Ross Canal and the Woods Place Canal) were utilized after excavation for agricultural drainage during logging episodes, but this was neither the purpose of their construction nor a major reason for their maintenance, and is not of major importance to the definition of a period of significance of these features. Documentation also does not indicate that activity asso-

ciated with an important historic theme was undertaken in the project area during the first half of the twentieth century.

Integrity of the Project Study Area

McClelland et al. (1995) state that

Historic integrity is the composite effect of seven qualities: location, design, setting, materials, workmanship, feeling, and association...a property's periods of significance become the benchmark for measuring whether subsequent changes contribute to its historic evolution or alter its integrity...Historic integrity requires that the various characteristics that shaped the land during the historic period be present today in much the same way they were historically...The general character and feeling of the historic period...must be retained for eligibility [McClelland et al. 1995].

The identified qualities of integrity are here applied to the project study area one by one, and a final assessment of integrity is presented below.

Location. Location “is the place where the significant activities that shaped a property took place” (McClelland et al. 1995) and to retain integrity, the characteristics of a rural landscape must retain their historic location. The features within the project area, as simple patterned variations in elevation, have not, of course, changed their location over time. However, the significant human activity in the historic context of the location of these features was not drainage *per se*, but cane agriculture on a Bayou des Familles plantation, for which the drainage features were an infrastructural improvement. Since cane agriculture was abandoned within the project area ca. 100 years ago, the significant activities that shaped the property ceased in this location, to be supplanted by natural processes of landscape change. The features are unrelated in space to the context of historic human activity in which they were created, since their location has been severed by the hurricane protection levee and borrow area from the natural drainage of the Bayou des Familles natural levee backslope.

Design. Design is the composition of natural and cultural elements comprising the form, plan, and spatial organization of the property. Unquestionably the location of the historic features was a result of design at the time when the land was being developed for agriculture. In the present, however, when agriculture has long been absent, the features within the project area are no longer integral to any historical drainage design elements outside of the project area. Vegetation succession has also affected the historic integrity of the design, since the drainage design of cane fields, which requires periodic upkeep to stay functional, has not been maintained.

Setting. Setting is the physical environment within and surrounding a property. Obviously, the setting of the project area bears no resemblance to the historic setting of the features during their period of significance, that is, the period from ca. 1830 to ca. 1900, when the project area represented the rear portion of regularly-proportioned, rectangular agricultural fields with drainage features integral to a network that encompassed the Bayou des Familles natural levee backslope.

Materials. Materials encountered in elevated features within the current project area (such as ditch spoil berms) consist entirely of locally-originating soil, without introduced materials such as *Rangia*, brick, gravel, etc. and therefore this quality of integrity is irrelevant to the present discussion.

Vegetation. Vegetation of the current project area also clearly has no integrity remaining from the period of its potential historic significance. The first-growth vegetation of the project

area was characteristic of natural levee/backswamp margins dominated by water-tolerant tree species, as described above. Undocumented free-range livestock grazing and logging may have occurred prior to the clearance of the area for crop-growing and had unknown environmental effects. When the property was originally prepared for agricultural use, all but perhaps a very few trees, and all other naturally occurring brush vegetation, would have been cleared from the property. During the potential period of historic significance of the tract, the agricultural fields would most likely have been characterized by furrow-planted cane (growing in a two-year cycle), corn, sweet potatoes, or broadcast leguminous crops. Headlands or turnrows between the cultivated fields would have been largely or entirely cleared of trees to eliminate a canopy over the cultivated areas, and characterized by grasses and other ground cover. Fields would regularly have been “flushed” or plowed level prior to replanting with crops, eliminating weeds and ground cover in an agricultural use cycle. After abandonment of agriculture on the project area tract, the area may have been again used for free-range livestock grazing, and it is likely that the area was again clear-cut in one or more logging episodes.

Currently, the project area is characterized by succession forest that has had no woodlot management, and since it is sometimes inundated, the vegetation is again dominated by a canopy of water-tolerant tree species (with nearly all specimens under 50 years old) and palmetto undergrowth, with a large variety of other plants. The current vegetation in the project area is dissimilar to historic species (*i.e.*, sugarcane) in scale, type, and visual effect, thereby negating any integrity of vegetation; McClelland et al. (1995) note that “original or in-kind plantings... may be necessary for the eligibility of a property significant for specific cultivars.” Since cane was the principal cultivar produced in the current project area, any argument for the significance of the area as an historic rural landscape would need to cite a present utilization of the property for cane agriculture, which is obviously not possible.

Workmanship. Workmanship in assessing integrity means observing “the ways people have fashioned their environment for functional and decorative purposes” (McClelland et al. 1995). The drainage features within the project study area, with the possible exception of the Woods Place Canal, were likely constructed with hand tools by slave labor or a contract labor workforce. The Woods Place Canal may have been extended across the project area in the late-nineteenth century or early-twentieth century with a mechanical device such as a ditch excavator or drag-line. Drainage features by their nature almost never remain in their original condition over any length of time, and must be regularly cleaned, resectioned, etc. for them to function properly. The smaller elements of the field drainage system, such as quarter drains, were obliterated each time a cane field was “flushed up” after the second year’s cane harvest and then redug after the seed cane was planted. Nevertheless, some smaller features within the project area may have been little altered by human processes, since cane growing was abandoned on the tract over 100 years ago. On the other hand, natural processes such as sediment deposition, subsidence, and succession of vegetation have dramatically affected the smaller linear features, many of which are now discontinuous and obscured. Meanwhile, the larger features, namely the Ross Canal and the Woods Place Canal, give evidence of having been maintained by mechanical means, if not expanded in size, since cane growing was abandoned on the tract. Although it is not possible to identify the parameters or the timeframe of all of these changes by archeology or other means, there can be little question that the evidence of historic workmanship in the extant features has been severely degraded by either natural processes, nineteenth- and twentieth-century drainage maintenance, or both, and that virtually all evidence of historic workmanship has been lost.

Feeling. Feeling, “although intangible, is evoked by the presence of physical characteristics that reflect the historic scene. The cumulative effect of setting, design, materials and workmanship creates the sense of past time and place” (McClelland et al. 1995). No sense of the period of potential historic significance is created by the project area in its present condition. Within the typical limited viewshed possible in the dense succession forest, only the presence of

small berms provides any evidence that the drainage features are man-made, and not naturally-occurring swales, puddles, or ponds; many smaller features are obscured by vegetation and standing water. The feeling most strongly evoked by the project area is that of the present succession forest, not a feeling of nineteenth-century agricultural fields.

Association. Association is the “direct link between a property and the important events or persons that shaped it. Integrity of association requires a property to reflect this relationship” (McClelland et al. 1995). Many decades of non-use for agriculture have substantially altered the project area’s ability to reflect association with the period of potential historic significance.

Unquestionably, the project area has been, and continues to be, undergoing natural processes that obscure and/or deteriorate historic features of the landscape, including sediment deposition, subsidence, and forest regrowth. In addition, relatively recent construction of the hurricane levee immediately east of the project area, and excavation of the large borrow pit adjacent to the levee, have created a massive physical disjunction of the project area, and the remainder of the landscape to which it was integrally related in the historic past. Stated another way, the project area has been *dis-integrated* from the agricultural field system formerly located on the natural levee backslope between the backswamp and Bayou des Familles.

The overall integrity of the project area, on the basis of all considerations above, is therefore deemed to be very low.

Boundaries of the Potential Rural Historic Landscape

McClelland et al. (1995) state that “boundaries for rural historic landscapes must encompass the area having historic significance... and contain contributing resources that express the characteristics of the historic landscape” (McClelland et al. 1995). The boundaries of the Rural Historic Landscape under consideration are logically bounded by the designed drainage system of which they were a peripheral part. The hydraulics of the historic cane plantation field drainage system were designed to carry water toward the backswamp, but the orientation of the plantation formerly in this location was in the other direction, toward the bayou. Thus, the features within the project area were relevant not to the backswamp toward the west, but to the landscape to their east, and any relationship of the major drainage features within the project area to later logging canals in the backswamp west of the project area is secondary to the potential area of significance of these features. Not only has a huge physical barrier (the hurricane levee and borrow area) eliminated the relevant historic pattern of land division and organization in this vicinity, but forest regrowth and recent modern housing construction have even had an impact the former field system outside of the Jean Lafitte National Park boundaries, between the hurricane levee borrow area and Bayou des Familles. The historic scene in the project area is discontinuous and irrevocably interrupted, and the designed drainage system outside of the project area, of which the historic drainage features were a part, has largely been destroyed. McClelland et al. (1995) state: “continuity [of landscape] is essential. Historic landscape characteristics should predominate... throughout. Peripheral areas having a concentration of nonhistoric features should be excluded” from the boundaries of an identified rural historic landscape (McClelland et al. 1995).

Since the landscape of which the project area is a peripheral part is discontinuous, the boundaries of such a landscape are moot. To seek to encompass a wider inclusion of all historic drainage features related to Bayou des Familles within the boundaries of a rural historic landscape could only be accomplished with gross abuse to considerations of significance and integrity.

Significance of the Project Study Area as a Rural Historic Landscape

The assessment of significance of a rural historic landscape is paramount to an evaluation of its NRHP eligibility (McClelland et al. 1995). To be significant, a property must possess significance in at least one of the four aspects of cultural heritage specified by National Register criteria A, B, C, and D (*National Register Bulletin* No. 15, 1995). Criterion A applies to properties associated with events that have made significant contributions to the broad patterns of history. McClelland et al. note:

Many rural properties contain landscape characteristics related to agricultural land uses and practices. Eligibility for significance in agriculture at a local level *depends on several factors*. First, the characteristics must have served or resulted from an important event, activity or theme in agricultural development as recognized by the historic contexts for the area. Second, the property must have had a direct involvement in the significant events or activities by contributing to the area's economy, productivity, or identity as an agricultural community. Third, *through historic landscape characteristics, the property must cogently reflect the period of time in which the important events took place...* Although significant events are often closely related to land uses, historic significance should not be equated with general land uses or the functions of specific buildings or structures...[McClelland et al. 1995, emphasis added].

In addition, National Park Service guidance states that “mere association with historic events or trends is not enough, in and of itself, to qualify under Criterion A: the property’s specific association must be considered important as well” (*National Register Bulletin* No. 15, 1995:12). If the specific association of a property cannot be considered important, the fact that a property is historic (i.e., over 50 years of age) is not enough for the property to be considered significant under Criterion A.

For a small peripheral portion of a cane field drainage system from a medium-sized nineteenth-century plantation, such as the current project area, to be considered significant under Criterion A, it “must be shown to have been significant” in agricultural history, and such a demonstration cannot be made on the basis of the historic contexts discussed at length above. The features cannot be demonstrated to be remarkably early, large, or efficient, or particularly representative of a leading plantation’s drainage techniques.

The historic landscape of the current project area is not deemed significant under Criterion B, since historic research has not indicated any association of the observable features with personages in the past whose accomplishments made a particular contribution to the historic development, economic prosperity, or cultural life of their community. The drainage system features are not the work of a pioneer cane grower or of a prominent community or industry leader.

The historic landscape of the current project area is not deemed significant under Criterion C, since the observable features do not embody the distinctive characteristics of a type, period, or method of construction, possess high artistic values, or represent a significant and distinguishable entity. They are not unique or innovative in their design or construction and have seriously compromised integrity.

The historic landscape of the current project area is not deemed significant under Criterion D, since the property is not likely to yield information important to history. The pattern and dimensions of the features could be predicted with great accuracy before field survey, and clearly the features, in as much as they have survived, are consistent with well-documented, standard practices in cane agriculture during the nineteenth century.

CHAPTER 8 CONCLUSIONS AND RECOMMENDATIONS

Conclusion of Significance Evaluation

There is no doubt that the current project study area landscape contains observable historic features, consisting of elements of a standard nineteenth-century cane field drainage system. However, the property in question does not encompass all (or even a large part) of a single integrated field drainage system. Its features are only a peripheral part of such a field drainage system that has otherwise been largely destroyed. The destruction of the major part of this specific field drainage system, and the degradation of features present in the study area by natural processes has completely and irrevocably compromised the integrity of the historic landscape and eliminated its ability to convey significance. It is the conclusion of this evaluation, conducted on the basis of National Register guidelines, that the project area is not and does not possess elements of a significant rural historic landscape.

Recommendations

Since the current project study area lacks historic integrity, no further research potential is identified on the basis of observable features. No further investigations of the current project area are recommended.

Jean Lafitte National Park contains much of the field system of the Christmas Plantation within its boundaries. The presence of the Christmas Plantation field system within the park provides an opportunity for further research into the impact of forest succession processes upon an abandoned nineteenth-century cane field drainage system in the Barataria region, with very much greater landscape continuity and integrity than the current project study area possesses. The Christmas Plantation also provides interpretive opportunities that would not be possible in the current project area because of practical limitations on public access.

REFERENCES CITED

Adams, R.D., B.B. Barrett, J.H. Blackmon, B.W. Gane, and W.G. McIntire
1976 *Barataria Basin: Geologic Processes and Framework*. Center for Wetland Resources, Louisiana State University, Baton Rouge.

Altschul, Jeffrey H.
1978 *The Houma-Terrebonne Archaeological Project*. Report of Investigations 10, New World Research, Ft. Walton, FL.

Ayres, Quincy Claude, and Daniel Scoates
1928 *Land Drainage And Reclamation*. McGraw-Hill Book Co., Inc., New York.

Bahr, L.M. and J.J. Hebrard
1976 Barataria Basin: Biological Characterization. Center for Wetland Resources, Louisiana State University, Baton Rouge.

Beavers, Richard
1982a *Data Recovery for Area of Adverse Impact by Proposed Access Facilities at the Barataria Basin, Marsh Unit-Core Area*. Submitted to Jean Lafitte National Historical Park and Preserve, New Orleans.

1982b *Archeological Site Inventory: Barataria Basin Marsh, Unit-Core Area, Jean Lafitte National Historical Park, Jefferson Parish, Louisiana*. Submitted to Jean Lafitte National Historical Park and Preserve, New Orleans.

Beavers, Richard C., Teresia R. Lamb, Gary B. DeMarcay
1982 *Cultural Resource Survey and Assessment Level-1 Initial Planning for West Bank Hurricane Protection Levee Jefferson Parish, Louisiana*. Submitted to the Division of Archeology, Baton Rouge.

Biographical and Historical Memoirs of Louisiana
1975 *Biographical and Historical Memoirs of Louisiana*. Volume 3. Claitor's Publishing Division, Baton Rouge. Originally published in 1892 by the Goodspeed Publishing Co., Chicago.

Bouchereau, Alcée and Louis
1868-1917 *Statement of the Sugar and Rice Crops Made in Louisiana*. Pelican Publishing Co., New Orleans.

Brown, Ian W.
1984 Late Prehistory in Coastal Louisiana. In *Perspectives on Gulf Coast Prehistory*, edited by D.D. Davis, pp. 94-124. University of Florida Press, Gainesville.

Brown, Ian W., Richard S. Fuller, and Nancy Lambert-Brown
1979 *Site Survey in the Petite Anse Region, Southwest Coast, Louisiana*. Research Notes 11, Lower Mississippi Survey Petit Anse Project, Peabody Museum, Harvard University, Cambridge.

Byrd, Kathleen M.
1991 Poverty Point Culture: Its Local Manifestations, Subsistence Practices, and Trade Networks. *Geoscience and Man* 29, School of Geoscience, Louisiana State University, Baton Rouge.

References Cited, Continued

Caldwell, Joseph R.
1964 Interaction Spheres in Prehistory. In *Hopewellian Studies*, edited by Joseph R. Caldwell and Robert Hall, pp. 135-143. Scientific Papers 12, Illinois State Museum, Springfield.

Champomier, P.A.
1844-1862 *Statement of the Sugar Crop Made in Louisiana*. Cook, Young, and Company, New Orleans.

Davis, Dave D., and Marco J. Giardino
1981 Some Notes on Mississippian Period Ceramics in the Mississippi River Delta. *Louisiana Archaeology* 7:53-66.

DeMarcay, G.B.
n.d. *A Preliminary Report on Isle Bonne, 16JE60*. Manuscript on file, Department of Anthropology, University of New Orleans, New Orleans.

Duhe, Brian J.
1977 Preliminary Evidence of Seasonal Fishing Activity at Bayou Jasmine. *Louisiana Archaeology* 3:33-74.

Dunn, Mary Eubanks
1983 Coquille Flora (Louisiana): An Ethnobotanical Reconstruction. *Economic Botany* 37(3):349-359.

Evans, John G.
1978 *An Introduction to Environmental Archaeology*. Cornell University Press, Ithaca.

Fisk, H.N.
1944 *Geological Investigation of the Alluvial Valley of the Lower Mississippi River*. Mississippi River Commission, U.S. Army Corps of Engineers, Vicksburg.

Ford, James A.
1951 *Greenhouse: A Troyville-Coles Creek Period Site in Avoyelles Parish, Louisiana*. Anthropological Papers Vol. 44, Pt. 1, American Museum of Natural History, New York.

Ford, James A., and George I. Quimby, Jr.
1945 *The Tchefuncte Culture: An Early Occupation of the Lower Mississippi Valley*. Memoir 2, Society for American Archaeology, Salt Lake City.

Ford, James A., and Clarence H. Webb
1956 *Poverty Point, a Late Archaic Site in Louisiana*. Anthropological Papers Vol. 46, Pt. 1, American Museum of Natural History, New York.

Ford, James A. and Gordon Willey
1940 *Crooks Site, a Marksville Period Burial Mound in LaSalle Parish, Louisiana*. Anthropological Study 3, Department of Conservation, Louisiana Geological Survey, New Orleans

Foster, J.W.
1874 *Pre-historic Races of the United States of America*. S.C. Griggs, Chicago.

References Cited, Continued

Foth, H.D. and L.M. Turk
1972 *Fundamentals of Soil Science*. John Wiley & Sons, Inc., New York.

Franks, Herschel A. and Jill-Karen Yakubik
1990 *Archeological Survey of 65 Acres of Land Adjacent to Bayou des Familles*. Southwest Cultural Resources Center Professional Papers Number 26. National Park Service, Santa Fe, New Mexico.

Frazier, D.E.
1967 Recent Deltaic Deposits of the Mississippi River: Their Development and Chronology. *Transactions-Gulf Coast Association of Geological Societies* 17:287-311.

Fuller, Richard S.
1991 *Identification and Analysis of Artifacts from Thirteen Sites in and Adjacent to the Barataria Unit of the Jean Lafitte National Historical Park, Jefferson Parish, Louisiana*. Submitted to Jean Lafitte National Historical Park and Preserve, New Orleans.

Gagliano, Sherwood M.
1963 A Survey of Preceramic Occupations in Portions of South Louisiana and Mississippi. *Florida Anthropologist* 16:105-132.

Gagliano, Sherwood M., and Roger T. Saucier
1963 Poverty Point Sites in Southeastern Louisiana. *American Antiquity* 28:320-327.

Gagliano, Sherwood M., R.A. Weinstein, and E.K. Burden
1975 *Archaeological Investigations Along the Gulf Intracoastal Waterway: Coastal Louisiana Area*. Submitted to the New Orleans District, U.S. Army Corps of Engineers, New Orleans.

Gagliano, Sherwood M., R.A. Weinstein, E.K. Burden, K.L. Brooks, and W.P. Glander
1979 *Cultural Resources Survey of the Barataria, Segnette, and Rigaud Waterways, Jefferson Parish, Louisiana*. Submitted to the New Orleans District, U.S. Army Corps of Engineers, New Orleans.

Giardino, Marco J.
1984 *Report on the Ceramic Materials from the Coquille Site (16JE37), Barataria Unit, Jean Lafitte National Historical Park*. Submitted to the National Park Service, Jean Lafitte National Historical Park and Preserve, New Orleans.

1985 Ceramic Attribute Analysis and Ethnic Group Composition: An Example from Southeastern Louisiana. Unpublished Ph.D. Dissertation, Department of Anthropology, Tulane University, New Orleans.

1993 *Cultural Chronology for 16SC27*. Manuscript on file at Earth Search, Inc., New Orleans.

n.d. *Overview of the Archeology of the Coquilles Site, Barataria Unit, Jean Lafitte National Historical Park, Louisiana*. Submitted to the National Park Service, Jean Lafitte National Historical Park and Preserve, New Orleans.

References Cited, Continued

Gibson, Jon
1977 *Archaeological Survey of Portions of Little River, Boeuf River, and Big Creek, East Central and Northeastern Louisiana*. Center for Archaeological Studies, University of Southwestern Louisiana, Lafayette.

1983 *Poverty Point. A Anthropological Study No. 7*, Louisiana Archaeological Survey and Antiquities Commission, Baton Rouge.

Giraud, Marcel
1987 *A History of French Louisiana, Volume V: The Company of the Indies, 1723-1731*. Louisiana State University Press, Baton Rouge.

Goodwin, R. Christopher
1985 *A Cultural Resources Survey of the Proposed Barataria Trail System, Jean Lafitte National Park*. Submitted to Jean Lafitte National Historical Park and Preserve, New Orleans.

Goodwin, R. Christopher, Stephen Hinks, William P. Athens, Paul C. Armstrong, Sylvia Favret, Jennifer Cohen, and James Wojtala
1989 *Cultural Resources Investigations of the West Bank Hurricane Protection Project, Jefferson Parish, Louisiana*. Submitted to the New Orleans District, U.S. Army Corps of Engineers, New Orleans.

Greengo, Robert E.
1964 *Issaquena: An Archaeological Phase in the Yazoo Basin of the Lower Mississippi Valley*. Memoirs 18, Society for American Archaeology, Salt Lake City.

Holley, George R., and Gary B. DeMarcay
1977 *Preliminary Report on the Prehistory of Barataria*. Paper Presented at the 3rd Annual Meeting of the Louisiana Archaeological Society, New Orleans.

Holmes, Barbara
1986 *Historic Resources Study of the Barataria Unit of Jean Lafitte National Historical Park*. Submitted to the Division of Archeology, Baton Rouge.

Hunter, Donald G., Charles E. Pearson, and Sally K. Reeves
1988 *An Archaeological Survey of Golden Ranch Plantation, Lafourche Parish, Louisiana*. Submitted to the Division of Archaeology, Baton Rouge.

Jackson, H. Edwin
1977 *A Preliminary Report on Analysis of Bowie Site (16LF17) Materials*. Manuscript on file, Center for Archaeology, Tulane University, New Orleans.

Jenkins, Ned J., and Richard A. Krause
1986 *The Tombigbee Watershed in Southeastern Prehistory*. University of Alabama Press, Tuscaloosa.

Jeter, Marvin D., and G. Ishmael Williams, Jr.
1989 Ceramic-Using Cultures, 600 B.C.-A.D. 700. In *Archeology and Bioarcheology of the Lower Mississippi Valley and Trans-Mississippi South in Arkansas and Louisiana*, by M.D. Jeter, J.C. Rose, G.I. Williams, Jr., and A.M. Harmon, pp. 111-170. Research Series 37, Arkansas Archeological Survey, Fayetteville.

References Cited, Continued

Jones, Kenneth R., Herschel A. Franks, and Tristram R. Kidder
1994 *Cultural Resources Survey and Testing for Davis Pond Freshwater Diversion, St. Charles Parish, Louisiana*, 2 volumes. Submitted to the New Orleans District, U.S. Army Corps of Engineers, New Orleans.

Kelley, David and Douglas Bryant
1986 *A Cultural Resources Survey of the Estelle Plantation Tract, Jefferson Parish, Louisiana*. Submitted to the Division of Archeology, Baton Rouge.

Kidder, Tristram R.
1994 Ceramic and Cultural Chronology. In *Cultural Resources Survey and Testing for Davis Pond Freshwater Diversion, St. Charles Parish, Louisiana*, edited by K.R. Jones, H.A. Franks, and T.R. Kidder, pp. 397-432. Submitted to the New Orleans District, U.S. Army Corps of Engineers, New Orleans.

1995 *Archeological Data Recovery at 16JE218, Jefferson Parish, Louisiana*. Submitted to the New Orleans District, U.S. Army Corps of Engineers, New Orleans.

Klippert, John H.
1867 *The Principles and Practice of Land Drainage*. Robert Clarke & Co., Cincinnati.

Kniffen, Fred B.
1936 A Preliminary Report on the Indian Mounds and Middens of Plaquemines and St. Bernard Parishes. In *Lower Mississippi River Delta: Reports on the Geology of Plaquemines and St. Bernard Parishes*, by R.J. Russell, H.V. Howe, J.H. McGuirt, C.F. Dohm, W. Hadley, Jr., F.B. Kniffen, and C.A. Brown, pp. 407-422. Geological Bulletin 8. Department of Conservation, Louisiana Geological Survey, New Orleans.

Knighton, D.
1984 *Fluvial Forms and Processes*. Edward Arnold, Baltimore.

Kolb, C.R.
1962 *Distribution and Engineering Significance of Sediments Bordering the Mississippi from Donaldsonville to the Gulf*. Miscellaneous Paper No. 3-481, U.S. Army Engineer Waterways Experiment Station, Vicksburg.
1963 Sediments forming the Bed and Banks of the Lower Mississippi River and Their Effect on River Migration. *Sedimentology* 2:227-234.

Kolb, C.R. and van Lopik, J.R.
1958 *Geology of the Mississippi River Deltaic Plain, Southeastern Louisiana*. Technical Report No. 3-483, U.S. Army Engineer Waterways Experiment Station, Vicksburg.

Maduell, Charles R.
1975 Federal Land Grants in the Territory of New Orleans: *The Delta Parishes*. Polyanthos, New Orleans

Maier, E.A.
1952 *A Story of Sugar Cane Machinery*. Sugar Journal, New Orleans.

References Cited, Continued

Manuel, Joseph O., Jr.
1984 The Fleming-Berthoud Site (16JE36). *Louisiana Archaeological Society Newsletter* 11(2):5-7.

Marshall, Josiah T.
1845 *The Farmer's And Emigrant's Hand-Book*. D. Appleton and Co., New York.

Matthews, Dayton
1983 *Soil Survey of Jefferson Parish, Louisiana*. United States Department of Agriculture, Soil Conservation Service, New Orleans.

Maygarden, Benjamin D.
2001 Drainage of Louisiana Cane Lands. In *Cultural Resource Survey and Land-Use History for West Lake Pontchartrain West Shore Hurricane Protection Project, St. John [the Baptist] and St. Charles Parishes, Louisiana*. Submitted to the New Orleans District, U.S. Army Corps of Engineers.

McClelland, Linda Flint, J. Timothy Keller, Genevieve P. Keller, and Robert Z. Melnick
1995 *Guidelines for Evaluating and Documenting Rural Historic Landscapes*. U.S. Department of the Interior, National Park Service web site.
http://www.cr.nps.gov/nr/bulletins/nr30_toc.html

McIntire, W.G.
1954 *Correlation of Prehistoric Settlements and Delta Development*. Trafficability and Navigability of Delta-Type Coasts, Trafficability and Navigability of Louisiana Coastal Marshes, Technical Report 5, Louisiana State University, Baton Rouge.
1958 *Prehistoric Indian Settlements of the Changing Mississippi River Delta*. Coastal Studies Series 1. Louisiana State University, Baton Rouge.

Menn, Joseph Karl
1964 *The Large Slaveholders of Louisiana, 1860*. Pelican Publishing Co., New Orleans.

Misner, Elizabeth J., and Elizabeth J. Reitz
1994 Vertebrate Fauna from 16SC27. In *Cultural Resources Survey and Testing for Davis Pond Freshwater Diversion, St. Charles Parish, Louisiana*, vol. 2, by Kenneth Jones, Herschel A. Franks, and Tristram R. Kidder, pp. 439-502. Submitted to the New Orleans District, U.S. Army Corps of Engineers, New Orleans.

Morehouse, A.D.
1910 *Reclamation of the Southern Louisiana Wet Prairie Lands*. Office of Experiment Stations, U.S. Department of Agriculture. Government Printing Office, Washington, D.C.

National Park Service
1991 *How to Complete the National Register Registration Form*. National Register Bulletin 16A, U. S. Department of the Interior, National Park Service, Interagency Resources Division.
1995 *How to Apply the National Register Criteria for Evaluation*. National Register Bulletin 15, U. S. Department of the Interior, National Park Service, Interagency Resources Division.

References Cited, Continued

Neuman, Robert
1984 *An Introduction to Louisiana Archaeology*. Louisiana State University Press, Baton Rouge.

New Orleans District, U.S. Army Corps of Engineers
1975 *Environmental Impact Statement for the Flood Protection Levee in South-central Jefferson Parish, Louisiana*. Draft report submitted to the Division of Archeology, Baton Rouge.

Nolan, Charles F., Editor, Dorenda Dupont, Associate Editor, and J. Edgar Burns, Translator
1993 *New Orleans Sacramental Records, Vol 8, 1804-1806*. Archdiocese of New Orleans, New Orleans.

Pearson, Charles E., Bryan L. Guevin, and Sally K. Reeves
1989 *A Tongue of Land near La Fourche: The Archaeology and History of Golden Ranch Plantation, Lafourche Parish, Louisiana*. Submitted to the Division of Archaeology, Baton Rouge.

Phillips, Philip
1970 *Archaeological Survey in the Lower Yazoo Basin, Mississippi, 1949-1955*. Peabody Museum of Archaeology and Ethnology Papers 60, Harvard University, Cambridge.

Phillips, Philip, J. Ford, and J. Griffin
1951 *Archaeological Survey in the Lower Mississippi Alluvial Valley, 1940-1947*. Papers of the Peabody Museum of American Archaeology and Ethnology Volume 25, Harvard University, Cambridge.

Pickels, George W.
1925 *Drainage and Flood-Control Engineering*. McGraw-Hill Book Company, Inc., New York.

Rehder, John B.
1971 Sugar Plantation Settlements of Southern Louisiana: A Cultural Geography. Unpublished doctoral dissertation, Department of Geography and Anthropology, Louisiana State University, Baton Rouge.

Russell, R.J.
1978 Aspects of Alluvial Morphology. In *Environment and Culture*, edited by H.J. Walker and M.B. Newton, Jr., pp. 57-64. Louisiana State University Press, Baton Rouge.

Shenkel, J. Richard
1981 *Oak Island Archaeology: Prehistoric Estuarine Adaptations in the Mississippi River Delta*. Submitted to the National Park Service, Jean Lafitte National Historical Park and Preserve, New Orleans.
1984 Early Woodland in Coastal Louisiana. In *Perspectives on Gulf Coast Prehistory*, edited by D.D. Davis, pp.41-71. Ripley P. Bullen Monographs in Anthropology and History, University of Florida Press, Gainesville.

Shenkel, J. Richard and Jon L. Gibson
1974 Big Oak Island: An Historical Perspective of Changing Site Function. *Louisiana Studies* 8:173-186.

References Cited, Continued

Smith, R.M., D.E. Pettry, and C. Breinig
1973 Inceptisols-Weakly Developed Soils. In *Soils of the Southern States and Puerto Rico*, edited by S.W. Buol, pp. 33-41. Southern Cooperative Series Bulletin No. 174. Southern States and Puerto Rico-Grant Universities and Soil Conservation Service.

Smith, Rhonda L.
1996 Vertebrate Subsistence in Southeastern Louisiana Between A.D. 700 and 1500. Unpublished Master's Thesis submitted to the Department of Anthropology, University Georgia, Athens.

Speaker, John Stuart, Joanna Chase, Carol Poplin, Herschel Franks, R. Christopher Goodwin
1986 *Archeological Assessment Barataria Unit Jean Lafitte National Historic Park*. Submitted to the Division of Archeology, Baton Rouge.

Stilgoe, John R.
1982 *Common Landscape of America, 1580 To 1845*. Yale University Press, New Haven, Connecticut.

Swanson, Betsy
1988 *Historic Land Use Study of a Portion of the Barataria Unit of The Jean Lafitte National Historical Park*. Submitted to the Division of Archeology, Baton Rouge.

1991 *Terre Haute de Barataria: An Historic Upland on an Old River Distributary Overtaken by Forest in the Barataria Unit of the Jean Lafitte National Historical Park and Preserve*. Jefferson Parish Historical Commission, Harahan, Louisiana.

Swanson, D.C.
1976 *Meandering Stream Deposits*. Exxon Production Research Company.

Toth, Alan
1974 *Archaeology and Ceramics at the Marksville Site*. Anthropological Papers 56, Museum of Anthropology, University of Michigan, Ann Arbor.

1988 *Early Marksville Phases in the Lower Mississippi Valley: A Study of Culture Contact Dynamics*. Archaeological Report 21. Mississippi Department of Archives and History, Jackson.

Van Wagenen, Jared Jr.
1953 *The Golden Age of Homespun*. Cornell University Pres, Ithaca, New York.

Villere, Sidney
1941 Fleurieu Genealogy. Manuscripts Division, Special Collections, Howard-Tilton Memorial Library, Tulane University, New Orleans.

Webb, Clarence H.
1982 The Poverty Point Culture. *Geoscience and Man* 17 (second edition, revised). School of Geoscience, Louisiana State University, Baton Rouge.

References Cited, Continued

Weinstein, Richard A.

1974 An Archaeological Survey of the Lower Atchafalaya River, Louisiana. Unpublished masters thesis, Department of Geography and Anthropology, Louisiana State University, Baton Rouge.

1986 Tchefuncte Occupation of the Lower Mississippi Delta and Adjacent Coastal Zone. In *The Tchula Period in the Mid-South and Lower Mississippi Valley*, edited by D. H. Dye and R. C. Brister, pp. 102-127. Archaeological Report 17, Mississippi Department of Archives and History, Jackson.

1987 Development and Regional Variation of Plaquemine Culture in South Louisiana. In *The Emergent Mississippian*, edited by R. A. Marshall, pp. 85-106. Cobb Institute of Archaeology, Mississippi State University, Starkville.

Weinstein, Richard and Eileen Burden

1976 *Impacts on Archeological Sites*. Submitted to the Division of Archeology, Baton Rouge.

Weinstein, Richard A., and David B. Kelley

1992 *Cultural Resources Investigations in the Terrebonne Marsh, South-Central Louisiana*. Submitted to the New Orleans District, U.S. Army Corps of Engineers, New Orleans.

Weinstein, Richard A., and Philip G. Rivet

1978 *Beau Mire: A Late Tchula Period Site of the Tchefuncte Culture, Ascension Parish, Louisiana*. Anthropological Report No. 1, Louisiana Archaeological Survey and Antiquities Commission, Baton Rouge.

White, David A., Steven P. Darwin, and Leonard B. Thien

1983 Plants and Plant Communities of Jean Lafitte National Historical Park, Louisiana. *Tulane Studies in Zoology and Botany* 24(2):101-129.

Williams, Michael

1989 *Americans And Their Forests: A Historical Geography*. Cambridge University Press, Cambridge.

Williams, Stephen and Jeffrey P. Brain

1983 *Excavations at the Lake George Site, Yazoo County, Mississippi, 1958-1960*. Papers of the Peabody Museum, Harvard University, Volume 74, Cambridge.

Wiseman, Diane E., Richard A. Weinstein, and Kathleen G. McCloskey

1979 *Cultural Resources Survey of the Mississippi River-Gulf Outlet, Orleans and St. Bernard Parishes, Louisiana*. Submitted to the New Orleans District, U.S. Army Corps of Engineers, New Orleans.

Woodiel, Deborah K.

1980 *St. Gabriel: Prehistoric Life on the Mississippi*. Unpublished masters thesis, Department of Geography and Anthropology, Louisiana State University, Baton Rouge.

Yakubik, Jill-Karen

1989 *Archaeological Investigations of Six Spanish Colonial Period Sites*. Professional Papers 22, Southwest Cultural Resources Center, National Park Service, Santa Fe.

References Cited, Continued

Yakubik, Jill-Karen, Herschel A. Franks, Marco J. Giardino
1989 *Archeological Investigations of Six Spanish Colonial Period Sites Barataria Unit, Jean Lafitte National Historical Park and Preserve, Louisiana*. Submitted to the Division of Archeology, Baton Rouge.

Yakubik, Jill-Karen, Benjamin Maygarden, Tristram R. Kidder, Shannon Dawdy, Kenneth Jones, Roger T. Saucier, Gayle Fritz, Allen Saltus, and Charlene Keck
1996 *Archeological Data Recovery of the Camino Site (16JE223), A Spanish Colonial Period Site Near New Orleans, Louisiana*. Submitted to the New Orleans District, U.S. Army Corps of Engineers.

Maps

1891 *New Orleans, LA*, 1:62,500 topographical map.

1932 *New Orleans, LA*, 15' quadrangle map.

1938 *Bertrandville, LA*, 7.5' quadrangle map.

1951 *Bertrandville, LA*, 7.5' quadrangle map.

1966 *Bertrandville, LA*, 7.5' quadrangle map.

1966 *Bertrandville, LA*, 7.5' quadrangle map (photo revised 1972).

1966 *Bertrandville, LA*, 7.5' quadrangle map (photo revised 1979).

1992 *Bertrandville, LA*, 7.5' quadrangle map.

Archival Sources

New Orleans District, Corps of Engineers, New Orleans
General Files
Aerial Photographs

New Orleans Notarial Archives, New Orleans (NONA)
Acts Books

Office of Clerk of Court, Jefferson Parish, Gretna
Conveyance Office Books (COB)
U.S. Township Plats

Tulane University, Howard Tilton Memorial Library
Microfilms Collection
U. S. Census Returns for Louisiana, 1850

APPENDIX A

ESI

Earth Search, Inc.
P.O. Box 850319
New Orleans, LA 70185-0319
(504) 865-8723
esi@cris.com
www.earth-search.com

July 10, 2001

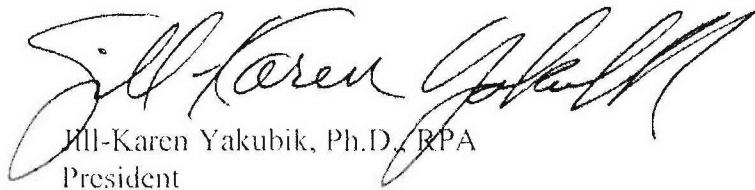
Ms. Betsy Swanson
149 Normandy Avenue
Harahan, LA 70123

Dear Ms. Swanson:

The New Orleans District, US Army Corps of Engineers has contracted our firm to assess the significance of various cultural features located within a planned borrow area in the vicinity of the Barataria Unit of Jean Lafitte National Historical Park and Preserve. Your considerable research into the history of this area may prove to be helpful for the purpose of establishing a context for the evaluation of these features using National Register criteria. I would like to discuss the possibility of your consulting with us on this project, as well as your fee for such consultation.

Please contact me at the above number at your earliest possible convenience. I look forward to hearing from you.

Sincerely,



Jill-Karen Yakubik, Ph.D., RPA
President

cc: Dr. Kenneth Ashworth
Dr. Edwin Lyon